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MALIGNANT DISEASE OF THE LIPS AND MOUTH.[1]

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THE subject upon which Dr. Meyers and I are to address you tonight, is cancer of the tongue, lips and mouth and as it would obviously be impossible in the time allotted to us to deal with all the manifestations of malignant disease in and about the lips and mouth, we decided to limit our remarks to the three commonest manifestations and to make the subject matter as practical as possible.

Dr. Meyers will deal with cancer of the tongue and will also describe more fully the involvement of the cervical glands; he will also describe the operation for their removal.

I will deal with cancer of the lips and floor of the mouth. Dr. Duhig will show you by the balopticon slides of epithelioma to emphasize Broders's classification of the degrees of malignancy as shown by the percentage of differentiation of the cancer cells.

By the courtesy of the Registrar-General I am able to give you the mortality figures for Queensland for cancer involving the head and neck for the past ten years (see accompanying table).

The table shows that for the ten year period, 1917 to 1926, 163 persons died of cancer of the tongue; 62 persons died of cancer of the lip; 177 persons died of malignant affections of the face (including rodent ulcer and epitheliomatous ulcers) and 38 persons died of cancer of the tonsil.

Lastly, during this ten year period a grand total of 1,023 persons died of some malignant lesion somewhere in the head and neck.

I think these figures bear eloquent testimony to the frequency of cancer in this State, in so far as the head and neck are concerned.

[1] Read at a meeting of the Surgical Section of the Queensland Branch of the British Medical Association on October 12, 1927.

Cancer of the Lip.

Cancer of the lip is practically always an epithelioma. It is one of the commonest manifestations of the disease in the male sex and begins almost invariably in the lower lip, usually to one or other side of the mid-line. Cancer of the upper lip, though comparatively rare, is equally common in both sexes and begins close to the middle line or right at one angle of the mouth. It has been observed to begin as "contact cancer" as occasionally occurs in other parts of the body, for example the two lips of the vulva, the *cervix uteri* and posterior vaginal wall.

Mode of Origin.

The disease begins usually between the ages of forty-five and sixty-five, but I have seen it in young men on several occasions. The youngest patient was aged sixteen years and the lad was first seen by Dr. G. P. Dixon and was sent on to me by him for operation in the Mater Misericordiæ Hospital. I have personal experience of four cases of true epithelioma of the lip (I mean in which the diagnosis was confirmed by tissue section) occurring in patients below the age of twenty-four years.

Ætiology.

The disease begins either as a crack or fissure at right angles to the long axis of the lip and most pronounced at the muco-cutaneous junction or as what appears to be a wart. Its appearance is frequently preceded by a history of herpes, excessive pipe smoking, trauma or syphilis. In any case before long the lesion becomes infiltrated and hard and ulceration soon occurs. Unfortunately it is the exception for us to see an epithelioma of the lip in a very early stage. More usually are we confronted with a large, foul, ulcerated area caused by the initial lesion having been stimulated into rapid growth and destruction by the misdirected efforts of a herbalist or even of a chemist who should know better. With the extension of the ulceration and in many cases before the extension occurs, the lymphatic glands begin to become involved. It is a

TABLE SHOWING DEATHS IN QUEENSLAND FROM CANCER OF CERTAIN ORGANS FOR THE YEARS 1917 TO 1926.

SITE OF TUMOUR.	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926
Brain	—	—	2	—	2	3	—	2	1	2
Ear	1	2	1	—	1	2	2	1	2	—
Eye	—	1	1	3	5	—	3	2	1	4
Face	14	22	13	18	11	12	18	15	21	33
Face and mouth	—	—	—	—	—	—	—	1	1	—
Forehead	—	1	1	—	—	1	3	2	—	4
Jaw	11	13	4	10	4	6	11	3	10	6
Lower jaw and lip	3	4	9	2	7	4	8	6	1	2
Lower jaw and tongue	—	—	—	—	—	—	—	1	—	—
Upper jaw	2	3	6	2	4	1	1	3	—	1
Larynx	1	6	10	6	10	9	9	3	13	7
Lip	3	7	6	8	6	10	9	6	5	2
Lip and neck	—	—	—	—	—	—	—	1	—	—
Mouth	3	3	1	7	5	1	8	9	6	9
Neck	15	18	11	15	15	9	13	14	15	8
Nose	—	2	—	—	1	2	1	1	1	3
Palate	2	—	1	—	3	—	2	2	3	1
Parotid	2	4	1	2	1	4	2	1	1	1
Pharynx	—	1	2	1	2	4	1	7	2	7
Throat	5	5	11	2	5	1	9	6	3	2
Tongue	15	20	17	14	17	15	22	15	14	14
Tonsil	3	—	1	4	9	4	2	7	4	4
TOTAL	80	111	98	94	108	88	123	107	104	110

remarkable fact that the invasion of the glands, macroscopically at any rate, may be delayed for many months, but in such cases when once the glands do become palpable, the spread is rapid. The question as to which group of glands first becomes involved is determined by the site of the primary lesion. As statistics show that over 75% of epitheliomata of the lip are to one or other side of the middle line, it follows that the submaxillary group are first involved. If, however, the primary growth is at or quite near the mid-line, the submental glands are first involved, but the metastasis soon spreads thence to the submaxillary glands, not of one but usually of both sides. Considerable very valuable research work on cancer of the lip has been done by Broders, of the Mayo Clinic. His analysis, covering 537 cases of the disease, shows that the lymphatic glands involved are in order of frequency the submaxillary group, the external jugular group, the submental group and the anterior cervical group. In my experience, covering some fifty cases, it has been rather common to get early involvement of the gland which lies upon the body of the mandible just anterior to the masseter muscle, and in close relationship to the facial artery and vein. Of course as the disease advances the glandular involvement spreads down the neck, the glands along the carotid sheath become first densely hard and finally soften, break down and leave a fungating ulcer from the floor of which fatal hæmorrhage may occur if sepsis and exhaustion have not previously killed the sufferer.

Fixation of the submental mandibular or submaxillary glands to the jaw is in my opinion associated with an almost hopeless prognosis. I can recall eleven patients with this condition; seven were operated upon over five years ago and only two are alive. With regard to the exact causation of cancer of the lip very little is known. The victims are usually elderly men and the persistent irritation of the lower lip by the hot stem of a pipe has been blamed for initiating the trouble, but E. H. Molesworth in a thesis recently published in THE MEDICAL JOURNAL OF AUSTRALIA has pointed out that these patients are usually red haired and that, lacking protective pigment in the skin, they are infinitely more liable to irritation by the actinic rays of the sun leading to chapping and splitting as well as burning of the muco-cutaneous junction of the lip. Farm workers and sailors appear to be specially prone to the disease and both classes are much exposed to strong sunlight. Moreover, pipe smokers who lead an indoor life appear to be less liable to the disease than pipe smokers who spend most of their time out of doors. But there is one factor commonly found in practically everyone who developes cancer in the lip, and that is a foul condition of the mouth and teeth. Many years of close observation have left me firmly convinced that whatever the specific cause of cancer anywhere along the alimentary tract, oral sepsis as a contributing factor plays the most important part in the ætiology. Syphilis by causing leucoplakia may undoubtedly be a strong contributing factor. In the presence of a surgically dirty mouth any crack, fissure, ulcer or wart of the mucosa or mucocutaneous junction anywhere in either lip is a potential cancer and should be regarded as such. If thorough cleansing of the mouth involving extraction of all infected teeth does not cause an early improvement in the lip condition, then I maintain that a wide area of the affected lip should be excised. Removal of a portion of the suspicious area for microscopical examination should be done only for very doubtful cases and then only with the diathermy knife.

Differential Diagnosis.

Difficulty in diagnosis is met with only in the early stages. A syphilitic chancre is followed by the rapid appearance of hard, shotty lymphatic glands, a blood Wassermann test would yield a reaction and the lesion should quickly begin to heal under correct treatment. It is possible to demonstrate the spirochæte in the scrapings of the ulcer by microscopical examination.

A tuberculous nodule is rare and not infiltrated like an epithelioma; moreover, unlike epithelioma, it is painful at an early stage. There is, however, one condition which may be confusing, namely, a pyogenic granuloma. Upon two occasions I have removed a moderate amount of lip to find the condition to be a patch of granulation tissue caused by the *Staphylococcus aureus*. If you are in doubt, a smear of a thin pus from one of the tiny nodules of the lesion will shown the organism.

Herpes labialis occasionally simulates epithelioma, but the diagnosis of the simpler condition is arrived at by the history of the rapid onset preceded by a sense of burning and by the speedy healing of the ulcer under suitable local treatment.

Prognosis.

The prognosis of cancer of the lip can be arrived at in a particular case only by a full consideration of the data. To Broders again we are indebted for pointing out that a microscopical examination of the primary growth will reveal what degree of differentiation is possessed by the cells. When all the cells are embryonic in type, the growth is rapid. Metastases will be early and extensive and the outlook bad. Dr. Duhig will now show some slides demonstrating this point. A grave prognosis is also to be given when the glandular metastasis has spread beyond the submaxillary group or when there is fixation of a gland to the periosteum of the jaw bone. In one such case occurring in a young man of twenty-four, who was seen by Dr. Ahern in consulation, a secondary gland became so firmly welded to the mandible as to raise the suspicion that it was a dentigerous swelling associated with an unerupted tooth. At operation I found it necessary to remove a strip of jaw bone to get the gland away. Finally a good prognosis is dependent on the early stage at which an operation is performed, and on the thoroughness with which it is carried out.

Treatment.

The essentials of treatment are: (i) that the primary growth and all the associated glands, whether palpable or not be removed by block dissection, (ii) that the patient should be kept under close observation for at least two or three years after operation and that during the first few months he should receive irradiation of the neck with properly filtered X rays. Whilst I saw radium being extensively employed in the treatment of malignant glands of the neck in America, I have no personal experience of its employment here.

Operation.

I should like first of all heartily to condemn the old V-shaped excision of the epithelioma as still practised by some surgeons. The removal of a suitable area of the involved lip should be preceded by a proper exposure and removal in one unbroken block of the lymph glands and fascia from below up. Dr. Meyers will deal presently with this part of the operation which is common to all operations for malignant disease about the lips, face, mouth and jaws. After the mass of fascia, lymphatic glands, submaxillary salivary glands and fat has been dissected up, the raw surface is covered with a moist sponge. Two parallel vertical incisions are made, one on each side in the lip well away from the lesion, and passing down to intersect the transverse incision across the mid-line of the neck. The defect in the lip is then closed, the mucous membranes being united first; all bleeding is carefully checked and the line of suturing is carried down across the point of the chin until it ends in the neck incision. The neck incisions are then closed after provision has been made for drainage at the dependent points and alcohol pad dressings are applied and secured in position. These patients being elderly as a rule, should not be kept in bed for more than a few days and care must be taken to maintain cleanliness in the mouth subsequent to as well as before operation. I consider it a risky proceeding to confine the gland clearance to one side alone, unless it happens that the growth is very early and more than two-thirds of the distance from the centre of the lip to the angle of the mouth. It must always be borne in mind that glands may be involved by cancer metastases for some time before they are palpable, so in this we have a further and cogent argument for clearing out the triangles on both sides of the neck.

Cancer of the Floor of the Mouth.

My personal experience of cancer of the floor of the mouth covers fourteen cases. The disease attacks elderly men as a rule and is usually rapid in its development and unfavourable in its prognosis. It begins most often either as a patch of leucoplakia in the angle between the anterior palatine fold and the lateral aspect of the base of the tongue or towards the anterior end of the sublingual fold. Three conditions appear to be associated with the genesis of the condition jointly or severally, namely, syphilis, excessive tobacco smoking or a foul condition of the mouth and teeth. Pain is usually an early symptom and it is a remarkable fact that a patient will suffer considerable pain from malignant ulceration in the mouth for a period of even weeks before seeking advice.

I recall, however, a case some years ago of a gentleman who was a company manager in this city. He asked my advice regarding the discomfort he was experiencing from smoking. This discomfort had been noticed for only ten days or so before I saw him. Examination showed that he had a tiny indurated patch of mucosa on the left side of the mouth between the tongue and the last molar tooth. The cervical glands and a considerable area of the floor of the mouth were cleared out by block dissection. Professor Welsh, of Sydney, to whom the specimen was submitted, reported that in the centre of the mass was the earliest epithelioma of the floor of the mouth he had yet seen. The patient made a good recovery and lived for some years to die of alcoholic cirrhosis of the liver.

A moderate proportion of cases of cancer of the floor of the mouth are seen by dentists primarily and by the same token some such forms of malignant disease are undoubtedly caused by the irritation of bad fitting dentures. Of the fourteen cases which I have had, three were apparently caused by faulty plates. As the epithelioma grows, ulceration occurs, the tongue begins to be interfered with in its movements, especially in regard to protrusion towards the unaffected side and salivation and thickness of speech are soon noticeable. Many of these patients complain at a very early stage of the discomfort caused by condiments and hot foods and drinks. As the disease progresses the cervical glands become quickly and progressively involved, the neck becoming red and œdematous and some of the gland masses tending to ulcerate. By this time the patient is practically worn out with pain, toxæmia and want of food and death soon ends his sufferings. I know of few more pitiable plights than that of the elderly man with an inoperable cancer of the floor of the mouth.

Gland Spread.

One of the earliest glands to become directly involved is that called the tonsillar gland which lies in the angle between the common facial and internal jugular veins. The submaxillary and upper deep cervical groups are also infected early and extensively. I regard a case of cancer of the floor of the mouth especially of the posterior type as quite hopeless as far as ultimate cure is concerned, if the glands are distinctly palpable.

Diagnosis.

Any infiltrated ulcer of the floor of the mouth, lingual fold or *plica sublinguatis* in which pain, especially pain radiating to the ear, and salivation are noticeable, should be regarded as malignant, whether the blood Wassermann test yield a reaction or not. If a reaction be obtained, a short period, say of ten days, may be spent in vigorous antisyphilitic treatment, but unless very considerable lessening of the size and infiltration of the lesion be then found, a very radical operation should be done.

Operation.

No attempt should be made to perform a radical operation for cancer of the floor of the mouth unless proper cleanliness of the mouth is first insured and all unhealthy teeth are removed. Dissection being commenced from below, the cervical glands should be thoroughly cleared from the triangles. The sterno-mastoid muscle should be removed to facilitate this. The external carotid artery should be tied just above the origin of the superior thyreoid artery. The cervical wound is then covered with moist sponges. A low tracheotomy should then be done or the anæsthetic continued by the intratracheal method. The pharynx is then plugged with a swab. From the angle of the mouth the cheek is deliberately split right back to the edge of the masseter muscle. The facial artery and vein are doubly clamped and divided if necessary, the mouth gagged widely open and the tongue pulled well forward and to the unaffected side. A wide excision is then made of the affected area and of a considerable amount of apparently healthy surrounding tissue. If necessary a wedge of the base of the tongue and the muco-periosteum of the mandible should be cut away. The mass of gland, fat and fascia in the neck dissection and the freed tissue in the mouth are now continuous and should be removed in mass. The sublingual duct, if not previously divided, should now be cut across. Bleeding is now controlled and the mucous membrane is drawn together as well as possible, a split tube is inserted in the lower part of the neck wound which is otherwise closed by sutures. As the cheek is repaired celluloid thread is used for the mucosa, the ends being left long to facilitate removal. The patient is put back to bed with his head and shoulders well raised and as soon as he recovers consciousness frequent irrigation of the mouth is done with "Listerine," dilute peroxide of hydrogen or some other suitable antiseptic. He should be got out of bed at about the third day or even earlier if his condition otherwise allows this, as these patients are especially liable to pneumonia.

Other Malignant Tumours.

Besides cancer of the tongue which will be described to you by Dr. Meyers, there are certain other sites of malignant disease of the mouth which time does not permit of our describing. These are epithelioma and sarcoma of the tonsil and epithelioma of the buccal mucosa and of the palate. In addition there are malignant affections of the jaw such as periosteal sarcoma.

Summary.

Before concluding my remarks might I be permitted to reiterate what I have already said in the form of conclusions from my own observations covering many years?

1. That cancer of the lips, tongue and floor of the mouth is almost invariably preceded for a long period of time by a more or less filthy condition of the mouth and teeth, seen not infrequently in educated persons of otherwise cleanly habits.

2. That when one of the metastatic glands is firmly welded to the jaw the condition is practically hopeless.

3. That X ray therapy is quite useless when the gland involvement is at all pronounced and absolutely so when one of the masses has ulcerated.

4. That in inoperable cases when the neck is filled with malignant glands, considerable relief may be obtained by paravertebral block injection of the cervical nerves by quinine and urea, by alcoholic injections of the second and third divisions of the fifth cranial nerve or by exposure and section of the branches of the superficial cervical plexus and in some cases by section of the lingual, inferior dental and glosso-pharyngeal nerves, when the cancer of the tongue or floor of the mouth is otherwise inoperable.

In regard to radium I regret I am unable to give you any personal experience as I know very little about it beyond being able to say that I saw it being used in the form of buried needles, radium applicators and radium packs in some of the American and Austrian clinics.

In regard to surgical diathermy I have also not had very much experience, having used it comparatively infrequently, but I believe that the diathermy knife will in time largely displace the ordinary scalpel in the dissection for malignant disease.

GENERAL PRINCIPLES IN THE TREATMENT OF CANCER OCCURRING IN THE REGION OF THE HEAD AND NECK.[1]

By E. S. MEYERS, M.B. (Sydney),
Honorary Surgeon, Brisbane General Hospital.

IT is generally admitted that cancer is a local disease and therefore each case is presumably at some time curable by complete excision.

The immediate extension from the primary focus is principally by lymphatic permeation in the regional lymphatic glands; secondary foci in distant organs and tissues are probably due to cancer emboli. Crile reports that among 4,500 autopsies in cases of cancer of the head and neck in only 1% were metastases found in distant organs and tissues. The collar of lymphatics of the neck forms a barrier through which cancer rarely penetrates, and every portion is surgically accessible.

The First Principle.

The first general principle I wish to emphasize, is the necessity for early surgical removal of the primary growth. Provided there has been no extension of the disease from the primary growth, we ought to obtain a cure in 100% of cases by simple excision.

Here we come up against the first difficulty. So far as I can ascertain nobody can say definitely of many primary growths that the disease is limited to

[1] Read at a meeting of the Surgical Section of the Queensland Branch of the British Medical Association on October 12, 1927.

the growth and has not spread to the regional lymphatic glands. Palpable glands may be inflammatory, carcinomatous glands are not necessarily enlarged (and non-palpable glands may be carcinomatous).

In order to appreciate the principles of cancer surgery of this region we must know the method and direction of spread of cancer from the various sites of origin. This in turn necessitates a thorough knowledge of the lymphatic system of this region and such knowledge should be possessed by anybody practising this branch of surgery.

Lymphatic Vessels of the Lip.

The submucous lymphatics of the lower lip drain into the submental glands, while the adjacent subcutaneous lymphatics drain to the submaxillary lymphatic glands.

Lymphatic Vessels of the Tongue.

The apical lymph vessels drain the tip of the tongue and open into the submental lymphatic glands. Some, however, pass directly to join the lower anterior group of cervical lymphatic glands at the level of the sixth cervical vertebra and these glands may be involved early.

The marginal lymphatic vessels drain the lateral borders of the tongue. Some of them join the submaxillary lymphatic glands, but the remainder run backwards and downwards into the deep cervical glands which lie in the carotid sheath opposite the third and fourth cervical vertebræ.

The basal lymphatic vessels drain the dorsum of the tongue. After running backwards towards the lower pole of the tonsil, they pierce the superior constrictor of the pharynx and open into the upper anterior group of deep cervical lymphatic glands under cover of the posterior belly of the digastric muscle. They communicate very freely with the corresponding vessels of the opposite side.

The central lymphatic vessels drain the substance of the tongue and descend between the genio-glossi to terminate in the lower anterior group of the deep cervical lymphatic glands.

Lymphatic Vessels of the Tonsil.

The lymphatic vessels of the tonsil join the upper anterior group of deep cervical glands. The tonsillar gland is placed in the angle between the common facial and internal jugular vein.

Lymphatic Glands of Importance in the Region.

The parotid group consists of: (i) subcutaneous glands, (ii) glands beneath the parotid fascia, (iii) the deep parotid glands. The deep parotid glands are generally grouped along the external jugular vein and external carotid artery and may be involved in cancer of the mouth. They drain the posterior part of the alveolar border of superior maxilla.

The submaxillary glands are three to six in number and run along the lower border of the mandible. The most constant is situated where the facial artery crosses the mandible (the middle gland of Staahr). This group drains the nose, cheek, upper lip, exterior half of the lower lip, the gums and the anterior third of the lateral border of the tongue. The efferent vessels from this group terminate in the deep cervical chain, especially into the glands over the bifurcation of the common carotid and this accounts for the frequency with which the glands at the bifurcation of the carotid are involved in mouth carcinoma. Frequently the efferent vessels enter the deep cervical glands much lower, namely, where the omohyoid muscle crosses the vessels.

The submental glands are one to four in number and drain the centre of the lower lip and floor of the mouth and tip of the tongue. The efferents empty into the deep cervical chain above the omohyoid and into the submaxillary glands. Sometimes efferents cross over and enter the deep cervical chain of the opposite side of the neck.

The deep descending cervical chain consists of: (i) substerno-mastoid fifteen to thirty in number, (ii) supraclavicular glands.

The substerno-mastoid group are divided into: (i) those behind and external to that muscle; these as a rule are not early involved in carcinoma of the mouth, they drain the back of the neck and scalp; (ii) the internal jugular chain which is most important. This group receives efferents from all other groups.

The supraclavicular glands receive efferents from the external groups of substerno-mastoid glands and are not early involved.

Most of the important points in the above description I have verified during the course of operation on these parts.

It has been shown that cancer from paired organs or distinctly one-sided foci usually metastasize regularly, while with cancer of unpaired organs, such as the tongue, the middle of the lip, metastasis is irregular.

The Second Principle.

The second principle then must be that in all so-called early cases the strict rule should be excision of primary growth and block dissection of the regional lymphatic glands. ...

In cases of cancer of the tongue *et cetera* it must be obvious that a complete block dissection of both sides of the neck must be done, if we wish to give the greatest chance of cure to the greatest number of patients.

The Third Principle.

The third principle is that every effort must be made to prevent reimplantation of cancer cells when excising affected tissues.

This is best done, I think, by employing one of the various forms of heat in removing the primary focus and the involved glands.

The Wyeth endotherm, judging by the literature at my disposal, best fulfils the requirements mentioned and I am hopeful that this refinement of technique will be another milestone on the march of scientific progress in the fight against cancer.

Where possible it is best to remove *en bloc* the tissues which connect the lymphatic gland with the primary growth (Cheatle). V-shaped incisions are not advisable because they converge towards the cancer and cut across possible cancer leaving tracts from the cancer to the lymphatic glands.

Beckman and Butlin state that cancer is infrequently found in the tissues between the growth and the glands (in cancer of the lip), their opinions supporting Ewing's view that in these regions lymphatic gland metastasis is embolic rather than a direct growth along the lymph channels.

Even if this view is incorrect, complete removal of tissues between the tongue and the glands that drain it is severe treatment for early cancer of the tongue and one to which patients would not readily submit.

In view of the present state of our knowledge in small primary lesions it should be sufficient to remove the primary growth with an uninfected margin of eighteen millimetres (three-quarters of an inch) as advocated by Butlin, together with the lymphatic glands draining the area in question.

The Fourth Principle.

The next principle I wish to speak of, is that care should be taken during our attempt to remove the affected tissues to see that the patient is protected against undue blood loss and the inhalation of blood and secretion into the bronchi. A thorough knowledge of the anatomy of the parts and when necessary the use of intratracheal anæsthesia or perhaps better still administration of the anæsthetic through a thyreotomy or tracheotomy opening and plugging of the pharynx should be adequate safeguard against the dangers I have mentioned.

Time does not permit me to enter into the principles of treatment of patients with advanced forms of cancer nor of the principles underlying the performance of block dissection of the neck. Those who wish to go into this question are referred to articles by Butlin, Maitland, Crile, Blair and others of whose writings I have freely availed myself in preparing this paper.

THE INTEGRATION CONCEPT APPLIED TO PSYCHIATRY.[1]

By W. S. DAWSON, M.D.,
Professor of Psychiatry, The University of Sydney.

THE separation of mental and physical has hindered greatly the progress of psychiatry, as of some other sciences, notably psychology and any effort towards unification deserves the closest attention. The object of this article is to demonstrate the value of a monistic conception and its application to the interpretation of mental disorders. Moreover, it will be pointed out that different schools of psycho-pathology may be linked together and to some extent harmonized. Present day psychiatry appears chaotic unless it is recognized that the theories advanced by Freud, Jung, Janet, Morton Prince and Kretschmer, to mention a few leading names, are not so much antagonistic as complementary, each contributing something of value, without being individually comprehensive. In such a state of affairs it is expedient to get back to first principles. Much of what is set forth in this article represents the teaching of the late Sir Frederick Mott and of Dr. Edward Mapother, at the Maudsley Hospital, London, and is a development of the doctrines of Hughlings Jackson and Henry Maudsley. This tradition has distinctive features and may be said to represent an English school of psychiatry.

The concept of integration which is engaging the attention of workers in several departments of knowledge, was applied by Hughlings Jackson to the phenomena of insanity. Jackson pointed out that the nervous system may be considered as made up of a series of anatomical and functional levels in increasing complexity of organization in the order of their phylogenetic evolution and that lesions give rise to symptoms and signs of two kinds, negative due to suspension of function at the level of the lesion and positive due to the activity of levels normally under the control of the higher damaged level. The primitive "mass-reflex" is an example of over activity of lower centres in spinal lesions. In Jackson's words:[(1)]

> The highest centres are nothing else than the centres of universal and most complex etc. representation, or what is equivalent, of universal and most complex etc. coordination. There is nothing else for them to represent than impressions and movements. Using old fashioned language, they are potentially the whole organism; the whole organism is "potentially present" in them. They are the unifying centres of the whole organism and thus the centres whereby the organism *as a whole* is adjusted to the environment. Anticipating, they are, although the most complex etc., the least organized, the ever organizing, and thus the centres whereby new adjustments of the whole organism, as a whole, to the environment are possible, that is. the centres in which evolution is most actively going on. Correspondingly they are the least automatic, or most imperfectly reflex, centres.

As will be seen later, the conception of the organism as a whole is emphasized by at least one important school of psychiatry and is of great practical value. Jackson described insanity as:

> A morbid affection of more or less of the highest cerebral centres, of the highest centres of evolution, of the anatomical substratum of consciousness . . . Dissolution of more or less of the highest centres may occur at different rates.

Jackson pointed out that sleep might be considered as a temporary dissolution occurring in the following stages: (i) Sleepiness, (ii) sleep with dreaming, (iii) sleep with somnambulism, (iv) deep dreamless slumber.

The various stages of dissolution may be seen in alcoholic intoxication in which we have, as Henry Maudsley said, the "abstract and brief chronicle of insanity":

[1] Part of an address delivered before the Section of Neurology and Psychiatry of the New South Wales Branch of the British Medical Association on September 20, 1927.

1. Lack of restraint in conversation, flow of ideas with impairment of the critical faculty and especially of autocriticism, giving increased self-confidence.

2. Greater impairment of highest level of control, full consciousness or attention. Positive symptoms from uncontrolled lower levels more in evidence in the form of emotional overaction. Tearfulness, hilarity, pugnacity *et cetera* according to temperament of individual. (Compare *vin triste* and the *vin gai*.)

3. Incoordination of thought processes and of sensory and motor functions. Conversation incoherent, gait and equilibrium impaired.

4. Muscular paralysis, stupor (temporary dementia), coma, perhaps progressing to paralysis of vital centres and death.

Jackson stressed four main factors in the production of mental disorder:

1. Different depths of dissolution of highest cerebral centres.

2. Personality of the individual.

3. Different rates at which dissolution is effected.

4. Influence of different local bodily states and of different external circumstances in the persons who have undergone that dissolution.

Every case of mental disorder is to be considered a function of these four variables. A mild degree of dissolution would give rise to "forgetfulness, lack of resolution, a lack of precision in expression," while in "deep dissolution there is a reduction towards a 'general personality' in which individual peculiarities are effaced, a reduction towards what is common to the race." (Compare Jung's "collective unconscious.")

It is evident that Jackson's conception of the dissolution of a hierarchy of functional levels goes far towards an explanation of at any rate the grosser phenomena of mental disorder, especially states of intellectual under-development and deterioration. And that Jackson did not overlook the possibility of a "lower" type of thinking is shown by the following.

> As evolution progresses, consciousness is, so to speak, raised higher; it may be that in dissolution the activities on the lower level of evolution have attendant states of consciousness which in normal conditions they had not or that their normal slight states of consciousness become more vivid.

This is a striking forecast of the present day conception of the subconscious mind and of psychological regression. Jackson held that a delusion is the result first of all of not knowing (dissolution from disease, negative symptom) and secondarily of wrong knowing (positive symptom due to function of intact remainder). For example, John Smith believes himself to be Napoleon: (i) dissolution of John Smith consciousness, (ii) unrestrained or uncensored action of lower fanciful level of the aspirations to be Napoleonic. In Jackson's words, "illusions and delusions imply that a thing is not recognized as it would have been before the insanity." This may be paraphrased by saying that a diminished sense of awareness or attention leads to faulty recognition and impaired judgement.

The progress of neurology has strengthened the validity of Jackson's teachings.

The principles enunciated by Jackson have been elaborated and restated by Henry Head.[2] They call for special notice in view of their bearing on the phenomena of mental disorder.

"1. When any functional level is attacked, the most complex functions and those which have appeared most recently, are the first to suffer; they are also disturbed to a greater degree and to a wider extent than those which are simpler or more inevitable in their expression.

"2. The negative manifestations of a lesion appear in terms of the affected level.

"3. A negative lesion produces positive effects by releasing activities normally held under control by the functions of the affected level.

"4. The functions of the central nervous system have been slowly evolved by a continuous process of development. The methods by which this gradual progress from lower to higher efficiency has been reached, are still manifest in the phenomena of its normal activity.

"5. Integration of function within the nervous system is based on a struggle for expression between many potentially different physiological activities. (i) Impulses potentially of a like sensory quality are gathered together. (ii) All impulses capable of exciting sensations of a different quality are rejected by the receptors which guard each functional level. (iii) The phenomena of adaptation. The power of adaptation to the conditions of the environment and to consequent shifting of the neutral point is one of the most important factors in the mechanics of integration. No stimulus acting over a long period can remain continuously at the same level of efficiency; it leads to a state increasingly favourable to the appearance of the opposite phase of activity. This is the essential condition underlying the tendency to biphasic reaction so characteristic of the central nervous system.

"These three processes, acceptance by similarity, rejection by difference and biphasic dispositions, form the main feature of the physiological functions of the central nervous system. They are the factors which lead to integration whether we are dealing with reflexes or with such psychic acts as sensations."

Psycho-Biology.

The concept of integration and of functional levels has formed the basis of the teaching of one of the leading American schools of psychiatry for many years. Dissatisfaction with the rigid and static disease entity system of Kraepelin led Adolf Meyer to take up a dynamic standpoint towards mental disorders considered as "reaction types." Mental disorders are disorders of a special level and type of functional integration. Mental pro-

cesses or, as Meyer would term them, stressing the activity element, mentation is a function of not only the brain, but also of the spinal and autonomic, the voluntary and involuntary muscular systems, of the glands of internal secretion, of the organs of sense. One is apt to associate thought too restrictedly to "brain," whereas we think with the whole of our body. The study of function is receiving greater attention in all departments of medical science, especially in the development of biological chemistry and the testing of the activities of organs in disease. The old separation of body and mind has made way for the combination of body-mind, for the conception of personality as an integration of levels of increasing complexity of organization, according to evolution. "The disease," says Meyer,[3] "or psycho-pathological or biological difficulty is not the phobia, the obsession or the hysterical symptom as such, but the fact that the patient fails to find more normal or less troublesome means of obtaining a balance or equilibrium within its own level and tends to various mechanisms of substitution." Hence Meyer's preference for the term "reaction type" rather than disease or clinical syndrome. Lest it be considered that abnormal reactions depend exclusively upon "inferior constitution" and heredity, conceptions which have hitherto been allowed to discourage therapy in mental disorders and have kept psychiatry too long at a purely descriptive stage, Meyer[4] writes:

> It must be borne in mind that psycho-pathology is beginning to assign a definite rôle, not only to the growth, nutrition and possibly extraneous diseases of the brain, but also to those brain conditions which we know and use only and as mental states and mental activities in the sense of a dynamic psychiatry. We are beginning to consider as legitimate material of science what common sense has taught us and the teacher has long used in practice. We want to know the effect of certain activities and reactions on subsequent life and also whether by rectifying mental attitudes and habits we may not be able to avert trouble in the future.

Meyer points out that in the present state of our knowledge we are as justified in considering schizophrenia as the culmination of years of faulty habit formation and inadequate responses to environment as in adopting the fatalistic attitude that the schizophrenic must necessarily belong to bad stock and that nothing can be done in the direction either of immediate rectification or of studying early developments with a view to prevention. The following scheme has been drawn up by Meyer with the object of systematizing the different varieties of abnormal reaction and of acting as a guide to clinical examination according to functional levels.

Issues to be considered with every fact of the level of psycho-biology or psycho-pathology are as follows:

1. Growth and nutrition—anthropological make-up.

(*a*) Heredity, traits appearing independently of environmental and educational influences.

(*b*) Record of individual growth-nature and nurture.

(*c*) Nutrition—disorders of elimination, for example uræmia; disorders of metabolism, for example endocrine defects.

(*d*) Vascular mechanism.

(*e*) Respiratory and oxidation problems.

2. Disorders of the neural hierarchies and their integrity.

(*a*) Sub or non-mental mechanisms. Reflex (cerebro-spinal or sympathetic). Cerebellar. Midbrain-thalamic (in part belonging to (*b*)).

(*b*) Mechanisms which approach or enter into the coordination into a personality, but not necessarily reaching the highest level of integration. These are mechanisms with a fairly definite localization.

(*c*) Types of neurological disorders and neuropathological syndromes not necessarily referable to lesions with a definite anatomical distribution, for example chorea.

(*d*) The psycho-biological level of reaction of which more or less consciousness forms an obligatory link or feature. The individual is considered as a whole, not merely as a sum of body plus mind. In Meyer's words:[2]

> This is a special level or type of integration directed towards adaptation in the individual or the interindividual environment, by means of linkings or reactions or associative material and affects with special subjective characteristics; perceptions, affections and thoughts and elaborative associative and dissociative processes, so developed that they serve equally well for the constructive imagination of past, present and future situations and capable of maximal economy and plasticity of reaction.

At least two present day schools of psychopathology can be brought into line with the integration concept and the theory of functional levels.

Janet.

According to Janet neurosis is the result of a weakening of the psychological synthesis, a dissociation of mental elements, an inability on the part of the patient to appreciate and assimilate the facts of reality. The essential feature of neurosis is a loss of the "function of the real" and symptoms arise or become intensified when a new adaptation to environment has to be made, when the individual is called upon to act rather than to think. The "symptoms of insufficiency" as Janet terms them, the feelings of unreality and estrangement, the "sense of incompleteness," to quote another of Janet's phrases, will be recognized and interpreted without difficulty as indications of impaired function of the highest level. Further, Janet has described a hierarchy of mental functions based on his study of the neuroses which bears a clear resemblance to functional levels according to evolution.

Janet's hierarchy of mental functions is as follows:

1. Function of the real.

   Action, efficient and well adapted.

   Attention, perception of reality with certitude and belief.

   Emotion adapted to the present moment.

2. Disinterested activity.
   Activity without full awareness, lacking conscious goal.
   Habit.
   Partially adapted activity.
   Perception without certitude.
3. Function of imagery.
   Imagination and reverie.
4. Level of visceral-emotional reactions.
5. Level of ill-adapted and useless movements.

As Janet's observations have been made almost exclusively on the neuroses, it might be objected that his theories have but a limited application in psychiatry. But without discussing the criteria of diagnosis and the distinctive features of neurosis and psychosis, it must be admitted that similar symptoms appear in both minor and major mental disorders and that many cases of psychosis develope through phases with signs and symptoms of neurosis. An hysteric in a dissociated phase may display conduct as gravely disordered as that of a psychotic and may sink to considerable depths of regression. The distinctions between neurosis and psychosis are more quantitative than qualitative and may be based on the degrees of disintegration of the personality. Where the hysteric undergoes a dissociation of the personality which is rarely either complete or of long duration, the paranoic to the end of his days lives and acts his evil dream and the dissociated system in his mind grows steadily like a cancer, until the whole personality is absorbed. We have to thank Janet for his advances on the methods of the Charcot school with its excessively physical bias to a more dynamic standpoint with the recognition that the symptoms of neurosis are reactions to stimuli, but reactions which are inferior and imperfect methods of meeting difficulties. One is apt to get the impression that the theories of dissociation advanced by Janet and others (for example, Morton Prince's co-conscious personality) are based upon the idea of a vertical cleavage in the stream of consciousness. Some authorities speak of dissociated ideas as being stored in logic-tight compartments. Such ideas do less than justice to the facts and do not appear to be true to Janet's theory which seems essentially to point to a horizontal section in the functional scheme by which higher functions are replaced by less complex and less developed modes of behaviour.

Freud.

There is much in the Freudian scheme which appears hard to substantiate in experience or to reconcile with other branches of science. It is unfortunate that the gist of Freudian teaching is obscured by an elaborate phraseology which needs translation into more commonly employed terms. A general criticism of Freudism is no concern of the present writer. But there are certain developments which indicate that the psycho-analytical school from its own special angle is approaching a common focus. Some years ago Freud pointed out that neurotic symptoms are regressive phenomena, a return to infantile modes of behaviour occurring in accordance with what he termed the "pleasure-principle." Sensory gratification of a primitive infantile type becomes the goal of endeavour in preference to the difficult and laborious adaptation to stern reality. The distinctions drawn by Freud between two types of thinking, namely according to the reality and pleasure principles may be compared with what have been described above as the characteristics of cortical and thalamic functions.

Thinking according to the reality principle:

1. Is directed towards a definite goal.
2. Goal is useful, the aim is accurate and efficient adaptation to and contact with reality.
3. It occurs in words. (Compare "symbolic formulation and expression" of Head.)
4. It is fatiguing and energy consuming.

This type occurs in the normal, mature individual while he is awake.

Thinking according to the pleasure principle:

1. Has no goal idea (reverie and dreams).
2. Is pleasure producing.
3. Is often detached from reality and occurs especially in face of an unpleasant situation.
4. Wishes are fulfilled in imagination ("castles in the air").
5. Tends to occur in images rather than in words (dreams).
6. Is effortless, not fatiguing.

This type occurs when highest level is not fully developed (childhood) or when its functions are in abeyance (sleep and mental disorder).

In his later writings, particularly in *"Das Ich und Das Es"* (1923) Freud has given a description of the structure of personality which is of great interest. The Ego is defined as a "coherent organization of mental processes" which "controls the approaches to motility," that is to the discharge of excitations into the external world.

The term "Id" is given to the lower instinctive component of the personality containing a mass of ill-defined tendencies and emotional dispositions which strive for expression, but do not become conscious unless they are linked on to verbal images. It may be added here that one of the objects of the psycho-analytical procedure is to achieve a clear formulation of the instinctive forces of the subconscious mind, that is to bring about an association with what is conscious. In this way a man may interpret the morbid self reproaches and the groundless fears of the melancholic as the verbal representation in his mind of his feelings of depression and anxiety. The effective state of depression has as its cognitive component the formulation "I am a miserable sinner." To quote again from Freud:[5]

In the Ego perception plays the part which in the Id devolves upon instinct. The Ego represents what we

call reason and sanity in contrast to the Id which contains the passions.

In a later passage Freud writes:

By virtue of its revelation to the perceptual system it (the Ego) arranges the processes of the mind in a temporal order and tests their correspondence with reality. By interposing the process of thinking it secures a postponement of motor discharges and controls the avenues to motility.

This again is parallel to the conception of cortical function advanced by neurologists.

What of the unconscious or rather the subconscious mind? In this same work Freud has repeated the essence of this doctrine. He says:

We have arrived at the term or concept of "unconscious" along another path, by taking account of certain experiences in which mental dispositions play a part. . . . . Psychoanalytic theory steps in with the assertion that such ideas cannot become conscious because a certain force is opposed to them, that otherwise they could become conscious and that then one would see how little they differ from other elements which are admittedly mental. The fact that in the technique of psychoanalysis a means has been found by which the opposing force can be removed and the ideas in question made conscious renders this theory irrefutable. The state in which the ideas existed before being made conscious is called by us repression and we assert that the force which constitutes the repression and maintains it is perceived as resistance during the work of analysis.

In the earlier stages of the psycho-analytical movement it was held that the unconscious was made up of mental processes which had, as it were, been thrust out of consciousness because they conflicted with the general body of the personality. To draw an analogy, the rubbish heap is kept out of sight in the back of the garden. It will be remembered that Freud and Breuer developed the theory of repression after their experience of a patient with hysteria who recovered when the memory of an unpleasant incident had been revived under hypnosis. And so for many years it was taught that symptoms arise from conflict between acceptable and unacceptable dispositions. The standpoint of psycho-analysis is being shifted. To quote again from "The Ego and the Id":

We land in endless confusion and difficulty if we cling to our former way of expressing ourselves and try, for instance, to derive neurosis from a conflict between the conscious and unconscious. We shall have to substitute for this antithesis another, taken from the understanding of the structural condition of the mind, namely the antithesis between the organized Ego and what is repressed and dissociated from it . . . We recognize that the Unconscious does not coincide with what is repressed; it is still true that all that is repressed is Unconscious, *but not all the Unconscious is repressed* (italics not in original). According, therefore, to the latest developments of psychoanalysis the Unconscious would appear to contain dispositions or reaction patterns of two types: (*a*) those derived from experience which cannot be harmonized or absorbed into the personality, (*b*) those which are of the nature of cravings or emotional dispositions (including instincts) which have never reached the level of symbolic formulation and expression in verbal images. (Compare Freud's statement: "The Unconscious can only wish.")

Some Mental Mechanisms Considered in the Light of the Integration Concept.

The foregoing may be recapitulated by applying the integration concept to certain mental mechanisms.

The Ego or the Censor of Freud the self-regarding sentiment of MacDougall may be regarded as the highest level of integration functioning with maximum efficiency in the physiological state of attention or vigilance, as Head has termed it, whose psychological counterpart is consciousness. Impairment of the highest level through disease manifested by demonstrable organic lesion or through fatigue caused by stresses, whether physical or psychological, gives rise to varying degrees of disintegration and the phenomena which we recognize as the signs and symptoms of mental disorder.

Regression.

Regression is a release phenomenon in which primitive (phylogenic) or infantile (ontogenic) modes of functioning predominate. In this connexion it is desirable to call attention to Hughlings Jackson's clear statement that dissolution may occur at different rates and that "activity on the lower level of evolution remaining" is not to be considered as necessarily comparable to the results of a clear cut transection at any definite functional level. Some mental processes may undergo dissolution at greater rates and to a greater extent than others, for example greater "emotional" than "intellectual" deterioration in *dementia præcox*.

In dreams there is a temporary regression. There is a striking passage in Nietzsche's writings[6] which has a bearing on this topic.

In our sleep and in our dreams we pass through the whole thought of earlier humanity. I mean in the same way that man reasons in his dreams, he reasoned when in the waking state many thousands of years ago. The first cause which occurred to his mind in reference to anything that needed explanation, satisfied him and passed for truth. In the dream this atavistic relic of humanity manifests its existence within us, for it is the foundation upon which the higher rational faculty developed and which is still developing in every individual. The dream carries us back into earlier states of human culture and affords us a means of understanding it better. The dream thought is so easy to us now, because we are so thoroughly trained to it through the interminable stages of evolution during which this phantastic and facile form of theorizing prevailed. To a certain extent the dream is a restorative for the brain, which during the day is called upon to meet the severe demands for trained thought, made by the conditions of a higher civilization.

The archaic nature of dream phenomena have, as is well known, been studied especially by Jung and Freud. The latter writes:[7]

The dream, which fulfils its wishes by a short, regressive path, affords us only an example of the primary method of working of the psychic apparatus, which has been abandoned by us as unsuitable. That which once ruled in the waking state, when the psychic life was still young and impotent, appears to be banished to the dream life, in somewhat the same way as the bow and arrow: those discarded, primitive weapons of adult humanity, have been relegated to the nursery.

Regressive phenomena appear with special prominence in the psychoses, especially in *dementia præcox*, the phantasies in which Jung has shown resemble primitive thinking, the beliefs and myths of the childhood of the race. In neurosis also regression appears but in less pronounced form and as a rule only as a brief phase of activity

in episodes. These may be seen in hysteria. Kretschmer[8] has described hysteria as a "reaction type of a naïve, underdeveloped psychic life, of a strongly instinctive impulsive structure" which in the face of stress tends to react by panic reactions of a poorly adapted all-or-nothing character (thalamus). In morbid states, whether "physical" or "mental," earlier and more primitive modes of reaction tend to replace normal function. Ontogenetic regression may be recognized in senile deterioration, when the old man lives in the past and dwells on the events of his childhood. In delirium striking experiences of previous years may be recalled and relived. The following is an example:

A man of thirty-six sustained a compound fracture which became infected and led to severe general symptoms. For weeks he was in a toxic confusional state and appeared to be living through his experiences during the Great War, so that his appreciation of persons and things was influenced (illusions of recognition). His restlessness frequently assumed an "occupation" type; he had been a machine gunner. With continuous drainage and irrigation the sepsis cleared up and he made a complete mental and physical recovery. During convalescence he referred to the delirium by saying: "I have woken up out of a fearful dream; I was right back in the war."

Similarity, Difference and Biphasic Dispositions.

As has been mentioned above, the three processes, similarity, difference and biphasic dispositions, have been emphasized by Head as "the main features of the physiological functions of the central nervous system." They may be applied to the realm of psycho-pathology. It may be recalled that long ago the psychologists described the association of ideas by similarity and contrast. Dominant interests determine association by similarity and rejection by difference, so that attention is directed towards objects of a certain class having a bearing on the goal idea. When attention is focussed upon one point long enough or when an action is performed sufficiently frequently, a habit is formed and that which was once done consciously and with effort, is now carried out with less awareness and with the expenditure of less effort. Habit reactions are prominent in mental disorders, for example perseveration of ideas, stereotyped movements and mannerisms, tics, the emotional expression in chronic melancholia. Rejection by difference is a function which is greatly affected in mental disorders, causing disintegration (weakening of attention) and conflict. When inhibition is impaired, there is loss of the ability to control action in accordance with any goal idea and interfering factors are no longer rejected as in health. Acceptance by similarity and rejection by difference are closely connected with biphasic reaction. Normally the continuance of any activity produces fatigue along the particular paths involved and opposite phases of activity are more easily entered upon. Mental disorders are characterized by an abnormal liability to fatigue of the highest centres and opposing tendencies are no longer subjected to inhibition or suppression. In his theory of schizophrenic negativism Bleuler has emphasized this aspect. According to Bleuler the schizophrenic suffers from an inability to harmonize conflicting tendencies and so displays an ambivalency in his affective life and an ambitendency in the sphere of conation. Negativism arises from the non-suppression of contrary impulses when an action is contemplated by the patient. The grossly illogical and phantastic ideation and the impulsive behaviour in schizophrenia are based upon the inner disharmony and lack of purpose. In exhaustion states following physical or mental stresses and in the obsessional neurosis, ambivalency may be a prominent feature.

Conclusion.

The views put forth in this article are descriptive of the phenomena of mental disorder, but not explanatory. One of the greatest difficulties in psychiatry is to differentiate between symptoms and causes and it is suggested that the Freudian school is frequently in error in this respect. For example the morbid self reproach and self depreciation and the suicidal impulses in melancholia are explained by the psycho-analysts as being of the nature of expiatory performances for infantile feelings of hate towards a parent or other individual. The more widely held view is that such symptoms are secondary to an emotional disorder perhaps based on an inherited or acquired abnormality of the affective apparatus, especially of the thalamic system. It is generally recognized that the precipitating factors in neurosis are rarely exceptional or severe judged by "normal" standards. Moreover, age and the physiological changes of puberty and the climacteric are associated with greater liability to nervous disorders, so that it is possible to point to a number of physical factors which can produce a lowering of what for lack of a better term, is called "nervous tension," shown by impaired inhibitions and reactions of lower physiological levels. On the other hand it cannot be denied that psychological situations are equally potent in producing effects on the organism, but whatever conclusions may be arrived at as to ætiology, it is suggested that the description of nervous disorders as being forms of disintegration or adaptations at a lower functional level has certain advantages in that it supplies a comprehensive scheme.

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SOME REMARKS ON AN ANTITUBERCULOSIS SCHEME FOR VICTORIA.[1]

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TAKING a broad view of the problem as it presents itself in every community all over the world, one is impressed with the fact that tuberculosis mortality and morbidity have declined considerably during the latter part of the last century and more rapidly in this century. This decline has been more pronounced in certain countries. For example, in England and Wales, tuberculosis mortality has declined 70% since 1850, in America 50% since 1900. In France, on the other hand, this decline has not been so marked.

This decline has not been due to changes in the virulence of the infecting organism and must therefore be due to an increased resistance offered to its ravages by the human race.

The causes of this increased resistance must be many and include better housing conditions, better education, better wages, increased leisure and improved economic conditions generally. Probably the most important factor is increased resistance of the individual to the bacillus. An important factor in this respect has been the widespread tendency to urbanization of population, with gradual stabilization of industrial population in cities and towns. The town-bred individual more constantly comes in contact with the tubercle bacillus and builds up an immunity. His position as regards resistance to the disease is better than that of his country cousin.

Definite antituberculosis measures on the part of communities have produced satisfactory results. Thus in England and Wales 60,000 persons died from tuberculosis in 1912, when antituberculosis measures on a wide scale were adopted. In 1926 the deaths had fallen to 30,000.

We may now proceed to mention in detail some of the most important elements in an antituberculosis scheme and their application to Victoria.

A COMPREHENSIVE TUBERCULOSIS SCHEME.

In spite of the great improvement obtained in the mortality figures, tuberculosis still remains one of our racial plagues. The sufferers in many instances are householders and breadwinners and the long course of the disease with its reduction and loss of earning power tends towards the production of poverty in the home and to a lowering of the resistance of other members of the family, particularly of young children. So many factors are involved in the case of tuberculosis that the disease must be attacked in the broadest possible way.

Measures for prevention may be classed under two broad headings, general measures and measures of direct attack.

[1] Read at a meeting of the Victorian Branch of the British Medical Association on February 1, 1928.

General Measures for Combating Tuberculosis.

Educational Measures.

Educational measures must embrace the instruction of the public generally, as well as the special education of the afflicted person. School authorities can help by the teaching of hygiene in schools. Those above school age should be made conversant with the essential facts in connexion with the prevention of tuberculosis as a crippling disease, the importance of good general hygiene of the individual, the need for the earliest possible diagnosis of the disease and the need for "contacts" in infected houses to place themselves under medical supervision. The need for periodical reexamination must be stressed and the knowledge of existing facilities at hospitals and clinics made available for such early diagnosis and supervision. Above all, the urgent need to create a strong public opinion against indiscriminate expectoration must be driven home. The public must learn to accept skilled advice and such treatment early and to realize that, by this means, they may be restored to health and retain a useful working capacity.

Public opinion must be educated to abolish overcrowding and to prevent unhygienic conditions prevailing in home and workshop.

Education of the public on these lines may be carried out through the agency of schools, Sunday-schools, the press, insurance companies and free kindergartens and, as far as possible, where patients and their families are concerned, by trained visiting nurses. Measures such as these would enlist the help of the public and would tend to dispel the fear of the consumptive which now exists. All patients cannot be kept in institutions and the "educated" patient can live safely at home and receive domiciliary treatment in many instances, particularly after training in a sanatorium.

Housing.

Housing conditions are of the first importance and an efficient housing act should be placed on the Statute Book, laying upon local authorities the duty of periodical house-to-house inspection, the scheduling of all houses in their area and the remedying of defects found. By this means the insidious development of overcrowded slum areas is prevented.

Health Visitors.

Regular visits to the home by the health visitor, supplemented by printed leaflets of instruction, serve to maintain a proper standard of care by the patient and his relatives. The health visitors appointed should be trained nurses and should possess personality and tact. The visits must be made on a friendly basis and there should be no hint of officiousness or officialdom. The influence of a carefully selected band of capable, well-informed and trained nurses in a community, working amongst the patient and his friends, is invaluable.

Measures of Direct Attack on Tuberculosis.

Measures of direct attack include: (i) the medical service, (ii) the tuberculosis bureau or chest clinic, (iii) residential institutions, (iv) milk supply, (v) hostels, (vi) cooperation with infant welfare schemes, (vii) open-air schools and classes, (viii) children's beds.

The Medical Service.

The medical service includes the general practitioner, the school medical inspector, the clinical tuberculosis officer, the medical officers of hospitals and sanatoria and the medical officer of health. Close cooperation and exchange of information must exist between each of these medical men in any successful scheme.

The general practitioner as a rule sees the patient first in his private practice and his help and hearty cooperation are absolutely essential. Clinical officers at dispensaries and institutions should at all times offer him help in the diagnosis of difficult cases by examination of sputum, X rays and other modern aids. The general practitioner must become interested in the prevention of tuberculosis and do his part by early notification of the disease to the authorities. His help and goodwill are required in any scheme of domiciliary treatment.

A free service of sputum examination should be available and the practitioner encouraged to utilize its aid. Existing post office regulations requiring that such specimens should be registered cause unnecessary trouble in this respect. Subject to a proper container and a suitable stout envelope of approved pattern, these specimens should be allowed to go *viâ* the pillar box for ordinary letter rates.

The practitioner should not hesitate to refer to the tuberculosis officer not only patients whose signs are definite, but all patients who show the slightest signs or symptoms which may suggest early tuberculous disease.

The school medical officer during his or her examination in the schools should refer all "suspect" children to the tuberculosis bureau for further investigation and observation. In turn, the bureau should provide the school medical officer with periodical lists of child "contacts" from infected homes, thus insuring double supervision.

The tuberculosis officer should work under the Director of Tuberculosis and be concerned chiefly with the work of the tuberculosis bureau or dispensary and should be in close touch with the general practitioner on the one hand and the medical officers of sanatoria on the other.

As a rule one tuberculosis officer is required for every 200 deaths *per annum* from the disease and one bureau per 300,000 of the population.

The tuberculosis officer and the assistant tuberculosis officer carry out the routine duties of the bureau or dispensary and consult with general practitioners on cases referred to them. All notifications and deaths from tuberculosis for his area should be promptly referred to the tuberculosis officer.

Each tuberculosis officer should become acquainted with the home conditions of the patients in his area and visit the homes in certain cases, although not necessarily undertaking domiciliary treatment.

In country districts the district medical officer might act as tuberculosis officer and possibly as clinical officer, if distances are not too great, but at any rate he might act as administrative officer for the district.

Health visitors should be trained nurses, preferably with some experience in dealing with tuberculosis patients and with some knowledge of social work. These nurses should visit the homes of the tuberculous patients after notification. They should collect information as to the actual home conditions of each patient and arrange for the examination and supervision of "contacts." They assist the medical officer in examinations at the bureau and in certain cases in the home.

A certain amount of actual nursing of patients at home may be undertaken, but this work is best referred to existing district nurses if possible. Lastly, these nurses are constantly engaged in revisiting former patients, especially those discharged from sanatoria and influencing them in their daily mode of life and encouraging them to carry out the sanatorium *régime* as far as is practicable at home. It should be the aim of these nurses to foster a friendly feeling in their visits and to obviate as much as possible any suggestion of officialdom or inspection.

The sanatorium superintendent should be a man of suitable personality, with the special experience required. He should work in close touch with the tuberculosis bureau officer and should understand the difficulties and conditions of work at the bureau. When possible he should arrange to have a half-day at the bureau, where he can reexamine and keep in touch with at least some of his former patients in the sanatorium.

Medical officers of health should exercise interest and care in the prevention of tuberculosis in their areas. Each medical officer of health can do much to forward antituberculosis work by careful inspection of housing conditions and prompt remedying of defects found, by attention to prompt disinfection of buildings and apartments after removal of a patient to an institution or after the death of a patient. In country areas or small towns the medical officer of health may also act as clinical tuberculosis officer. A short course at an existing tuberculosis bureau would help him to continue the work in his area on lines uniform with those in the city. Close supervision of the milk supply will help in the prevention of non-pulmonary tuberculosis and the medical officer of health can do much in his area to warn mothers of the danger of giving raw milk to young children.

The Tuberculosis Bureau or Chest Clinic.

The tuberculosis bureau or chest clinic is recognized to fulfil certain well-defined functions:

1. A centre for diagnosis, where doubtful cases are received and subjected to careful investigation.

2. A clearing house, where patients are classified and drafted to suitable institutions or otherwise referred for treatment.

3. A centre for certain forms of curative treatment, especially the continuance of forms of treatment begun in the sanatorium.

4. A centre for the supervision and after care of domiciliary cases.

5. A centre for the examination and continued observation of "contacts."

6. A centre for information and the dissemination of educational matter concerning tuberculosis.

Roughly speaking, one such bureau with clinical, medical and nursing staff, should be provided for each 300,000 of the population in a town area. To aid the diagnostic facilities of the medical officer each bureau should have suitable arrangements for the examination of sputum and other pathological material and for efficient X ray examinations. These arrangements are best made with existing hospitals. Work at these bureaux should not drift towards emulation of hospital out-patient departments, but the preventive side of the work should be kept in the foreground, particularly the supervision of known infective (tuberculous sputum) patients and their contacts. Special efforts should be made to secure early recognition of the disease by gaining the acquaintance and the confidence of neighbouring practitioners.

Routine attendance of patients for receiving drugs must be rigidly avoided and discouraged and treatment given at these bureaux should be restricted to patients requiring some special form of treatment after discharge from the sanatorium.

All patients with definite tuberculosis should be referred to their own doctor for treatment, excepting: (i) those who should be sent immediately to an institution, (ii) those requiring some special form of treatment which can be given most efficiently and suitably at the bureau and (iii) those persons who cannot afford to consult a private doctor.

When a patient is referred for domiciliary treatment, the name is still kept on the bureau register and steps should be taken by visits from the nurses and consultations with the private doctor to keep in touch with the patient.

Domiciliary Treatment.

In England, Scotland and Wales the *National Health Insurance Act* in addition to "sickness benefit" provides "medical benefit," under which an insured person receives treatment at the hands of his "panel doctor" and thus the domiciliary care of the insured tuberculous patient is provided for, while, in the case of the non-insured person without means the Poor Law medical officer attends. In Victoria a certain number of tuberculous patients already receive medical attention under lodge practice, but a large number have to attend hospital out-patient departments or see a private doctor.

It is undesirable, as explained above, that the new bureau should undertake domiciliary treatment of such patients and some agreement should be made between the medical profession and the Government for the care of such patients.

It is hoped to establish a central dispensary in Melbourne together with clerical, medical and nursing staffs at an early date, with two branch bureaux —three in all; that is approximately 1 per 300,000 of the population. A similar tuberculosis bureau should be provided in each of the larger towns, Bendigo, Ballarat, Geelong *et cetera*, the staff for these institutions undergoing a period of training in the methods adopted at the central dispensary and using similar records.

Records.

A modern vertical filing system of all papers and records concerning each patient should be instituted and kept at each bureau, the patient's *dossier* being transferred with him to the sanatorium or on change of residence to a new area.

Residential Institutions.

It is customary to divide beds utilized for the treatment of lung tuberculosis into two categories: (i) sanatorium beds, (ii) hospital beds.

By sanatorium treatment is meant prolonged treatment in "early" cases when there is some reasonable hope of arresting the disease.

By hospital treatment is meant: (i) the treatment of patients with acute tuberculosis with considerable constitutional disturbance who may have received relatively limited damage to the lungs; (ii) the treatment of patients with certain doubtful conditions requiring observation; (iii) the treatment and education for relatively short periods of patients with chronic tuberculosis who may have broken down temporarily, but may recover to a certain extent with rest; (iv) the isolation of patients with advanced tuberculosis whose working capacity has entirely given out and who cannot safely be left at home owing to unsuitable conditions.

In practice it is difficult to draw hard and fast lines between each institution and every sanatorium should have some "hospital" beds available in a special pavilion on the site.

The number of beds and institutions have been detailed already.

Country Hospitals.

A rather disconcerting feature at present is the tendency for patients with lung tuberculosis, discovered in the country, to be referred to Melbourne for sanatorium treatment, irrespective of the condition of the patient. This drift of the tuberculous patient to the town should be stopped. A patient notified as suffering from pulmonary tuberculosis should be referred for some weeks' observation to certain of the country hospitals, where a few beds

should be set apart for the purpose. Should the patient manifest a satisfactory fall of temperature and pulse with this preliminary rest and otherwise indicate that he would benefit by more active treatmen in an institution, he should be drafted to one of the existing sanatoria. On the other hand, should the condition prove to be chronic or should the patient show signs of rapidly going down hill, he should be retained at the country hospital or isolated at home when possible. There is nothing magical in sanatorium treatment. The essence of sanatorium treatment is to put the patient in the best hygienic surroundings and allow the body to work out its own salvation. In addition, attention to details of the patient's life, securing sufficient and complete rest in the early weeks, followed by carefully regulated periods of exercise, subject to the response of pulse, temperature and weight, secures the best results. These measures, particularly securing rest in the first few weeks of treatment, can be carried out with complete success at any country hospital.

In Table I suggested centres for tuberculous patients are set out.

TABLE I.—SHOWING SUGGESTED CENTRES FOR TUBERCULOUS PATIENTS.

Town	Beds	Approximate Population	Suggested Number of Observation Beds Allotted for Pulmonary Tuberculosis (Total 42)
Ballarat	180	38,500	6
Bendigo	222	35,500	6
Geelong	162	41,000	6
Sale (Gippsland)	48	4,000	2
Hamilton	82	8,600	2
Horsham	70	8,000	2
Mooroopna	80	12,600	3
Warragul	42	5,000	2
Warrnambool	60	8,000	2
Swan Hill	45	11,500	2
Wangaratta	67	3,700	2
Echuca	36	17,000	3
St. Arnaud	44	5,500	2

Considerable overlapping, delay in transfer of patients, unduly prolonged duration of stay in institutions and different levels of efficiency in administration exist at the present time. Salaries and wages of staff show differences as between institutions dealing with the same class of patient. The cost per head per week varies also. Methods of procedure as regards admission to the various institutions are different, with different admission forms. Thus the Austin Hospital and Janefield patients are admitted through a lay committee, meeting once a fortnight and delays often occur and at times a patient may be admitted before another whose condition is more urgent. This lay committee should be relieved immediately of this function. A reform at once required is that institutions should send in a daily return of empty beds, giving the type of bed and that the central bureau should then send patients to the appropriate institutions and arrange any transfer required directly and without delay.

Modern Hospital Administration.

Modern hospital administration is a highly technical and skilled task. The appointment of a lay administrator with the necessary technical experience and suitable office staff, working with a sanatorium board formed from men already acting on hospital committees, together with the Chief Health Officer and State Director of Tuberculosis as medical members *ex officio* would secure the greatest efficiency in administration of these beds for tuberculous patients in the scheme. Estimates could be presented to the Government half-yearly and precepts issued.

Finances.

The Government should take over the whole of the cost of these beds, recovering such sums as are possible from the individual patients and 50% of the cost of maintenance from the municipality where the patient resided.

Milk Supply, Non-Pulmonary Tuberculosis.

In view of the fact that the bulk of non-pulmonary tuberculosis is met in young children and is of bovine origin, the following recommendations would very speedily show their influence by a diminished incidence of this form of the disease.

Through the courtesy of nine hospitals I set out in Table II the number of patients with non-pulmonary tuberculosis (adults and children) admitted during two years. Similar patients are admitted throughout the state.

TABLE II.—SHOWING NUMBERS OF PATIENTS WITH NON-PULMONARY TUBERCULOSIS ADMITTED TO CERTAIN HOSPITALS DURING 1925-1926.

Hospital	1925	1926	Total in two years
Melbourne Hospital	110	121	231
Children's Hospital	97	91	188
Alfred Hospital	69	62	131
Saint Vincent's Hospital	32	19	51
Austin Hospital	33	32	65
Homœopathic Hospital	13	22	35
Queen Victoria Hospital	5	3	8
Ballarat Hospital	15	16	31
Bendigo Hospital	21	21	42
Total	395	387	782

In Table III is an analysis of the 782 patients admitted to these hospitals during the two years reviewed.

The subject of milk supply is a large one, but the adoption by the Government of legislation laying down a certain proved standard of cleanliness of milk supplied to towns and efficient Pasteurization and bottling of such milk in approved plant would immediately affect the incidence of non-pulmonary tuberculosis. At the same time coordinated and stringent efforts should be made throughout the State to eradicate tuberculosis from dairy herds. At first, tuberculin tests promised much, but it was soon recognized that to carry them out universally and thoroughly involved prohibitive cost and much disturbance to the milk industry.

TABLE III.—SHOWING ANALYSIS OF PATIENTS WITH NON-PULMONARY TUBERCULOSIS.

Type of Tuberculosis	Melbourne Hospital	Children's Hospital	Alfred Hospital	Saint Vincent's Hospital	Austin Hospital	Homœopathic Hospital	Queen Victoria Hospital	Ballarat Hospital	Bendigo Hospital	Total
Generalized Tuberculosis	25	12	—	—	—	1	—	—	1	49
Meningeal Tuberculosis	6	18	15	—	—	—	1	—	3	43
Tuberculosis of Bowel, Peritoneum or Abdominal Glands	30	29	8	5	2	4	1	16	2	97
Tuberculosis of Glands	30	46	—	7	—	12	1	1	10	107
Tuberculosis of Skin	2	—	—	—	—	—	—	—	—	2
Tuberculosis of Bone	54	12	24	7	30	2	—	6	16	151
Tuberculosis of Joints	50	49	28	6	25	6	3	6	4	177
Tuberculosis of Kidney	6	1	—	9	1	—	1	1	2	21
Genito-Urinary Tuberculosis	28	—	—	5	—	—	—	1	2	36
Other forms of Tuberculosis	—	21	56	12	7	10	1	—	2	109
Total	231	188	131	51	65	35	8	31	42	782

Professor Bang, of Copenhagen, has suggested a modified scheme. In short, the method consists of frequent veterinary inspection of all dairy cows and the removal of those showing clinical symptoms of tuberculosis in the first place and, in the second, separation of calves at birth and feeding them on milk from non-tuberculous cows or, failing that, on milk that has been Pasteurized. Such calves are tested at the end of six or twelve months and it is found that few, if any, react to tuberculin. Any calf that reacts, is of course removed from the herd. This procedure is continued year after year and gradually a new healthy herd is evolved from the old infected one with little expense and disturbance. Professor Woodruff, of the Veterinary College, Parkville, strongly recommends this procedure and considers the scheme a thoroughly practical one for Victoria. There are additional possibilities in the use of the attenuated vaccine introduced by Professors Calmette and Guerin in the attaining of dairy herds free from tuberculosis.

Invalid Pensions.

Any person who is permanently and totally incapacitated from work and without means, is eligible for a pension of £1 per week. Ability to earn a nominal sum of say seven shillings or eight shillings per week does not disqualify a person from receiving a pension.

In connexion with any tuberculosis campaign a well thought out pension scheme should be evolved, so that patients are able to take advantage of institutional treatment without worry as to the welfare of their dependants and so that the standard of living of contacts may not be lowered through the removal of the breadwinner.

National Insurance Act.

The National Insurance Commission might usefully consider the possibility of granting half benefits to wage earners who may be discharged from sanatoria, when the patient is well able to undertake a half-day's work, while it is inadvisable for him to undertake a full day's work.

Part of the system of modern sanatorium treatment is to measure the amount of work a patient may or should do, and the above scheme would enable the physician to restore him to full work gradually and to prevent relapse by a too sudden resumption of full work on the one hand or a period of enforced and harmful idleness on the other. I have placed this suggestion before Mr. H. C. Green, Secretary to the National Insurance Commission.

In conclusion, I would summarize the state of affairs in Victoria by stating that antituberculosis efforts seem to have stopped short in sending tuberculous patients to institutions; that these institutions have not been utflized to the best advantage and that what is urgently required is to build up a carefully organized preventive service, as outlined in these notes. Of this service, the most important factor is a keen, well trained and enthusiastic personnel working among the people. These measures have been of proved utility in England during the past sixteen years and with the better conditions obtaining in Victoria as regards climate, air space, housing and standards of life in general we may confidently look forward to success in lowering the incidence and mortality of this disease.

Reports of Cases.

AN UNUSUAL TYPE OF FAMILIAL MYOPATHY COMBINED WITH LIPOMATOSIS.

By C. BICKERTON BLACKBURN, M.D. (Sydney),
Honorary Physician, Royal Prince Alfred Hospital, Sydney.

Miss M.P. consulted me on October 12, 1927, complaining of inability to use her hands and feet, weakness of the back and painful swellings in the neck. She stated that up to the age of eighteen she had had good health, but had then contracted a severe attack of rheumatic fever which affected her heart. Since then she has never been strong, first noticing that her lower legs and feet wasted and were weak and later similar changes in her hands. About the same time she began to develope a soft swelling at the back of the neck. These symptoms gradually progressed, but she could get about fairly well till she contracted influenza in the 1919 pandemic. After this she had numbness first in the feet which spread upwards to the hands; her hands became so numb that she could not tell if anyone touched her and articles fell from her hands "if she looked away." In three weeks she lost all power completely, except that she could move her neck. She lost her voice and her vision was very poor. After three months she began to improve gradually and was able to prop herself up by using her elbows and since then she has improved enough to get about feebly, usually with the help of a stick, but her legs, hands and forearms

have continued to waste. At the same time the "masses of flesh" have increased around her neck and some of these have been very tender and at times have ached a great deal. Her menstruation has been very irregular since the rheumatic fever and sometimes she has gone for six months without "seeing anything."

On examination she presented an extraordinary appearance with a rather big face set in a collar of bulging lipomatous tissue, especially pronounced in the right posterior triangle and over the nape of the neck. Though diffuse, the soft masses could be felt to be separate, not attached to the skin nor tender, but along the line of the clavicles there were some smaller, hard, intensely tender masses like hen's eggs, suggesting the hard, tender areas met with in cases of Dercum's disease. In addition there was a soft uniform increase in the subcutaneous fat in both submaxillary, myohyoid and infraparotid regions. The breasts were large (see Figure I) and on the back hanging down over the region of the *latissimi dorsi* was a huge mass of soft fat resembling an air cushion (see Figures II and III). Below the level of the waist line subcutaneous fat was scanty, except in the region of the *mons veneris* where there was a soft lipoma that looked like a tennis ball pushed under the skin. There was no excess of fat on the face except on the chin.

The extremities presented a great contrast, being very wasted (see Figure IV). The hands were claw like with extreme atrophy of the thenar and hypothenar eminences and of the dorsal *interossei*. The forearms were much atrophied, but to a less extent than the hands.

The feet resembled the talons of a bird, apparently consisting literally of skin and bone. *Pes cavus* was present.

Below the knees the muscles had so wasted that it was astonishing to see her walk unsupported. The thigh muscles were wasted but to nothing like the same degree.

The muscles of the back were much wasted and so weak that she had great difficulty in sitting up after lying down.

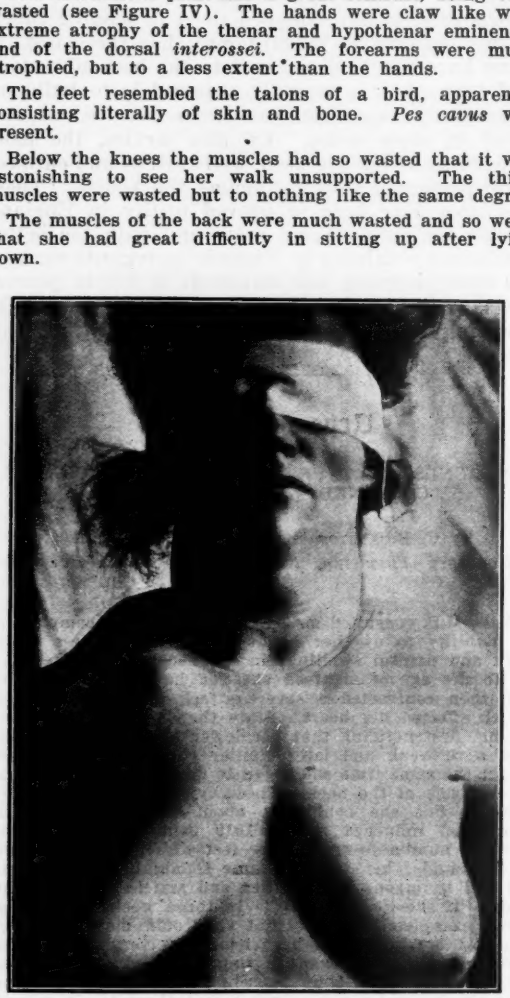

FIGURE I.

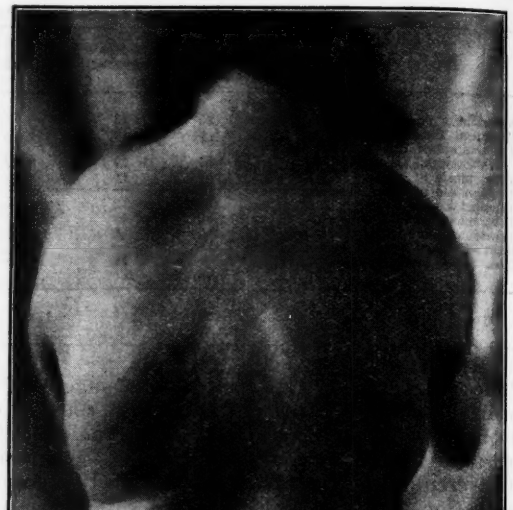

FIGURE II.

The cranial nerves appeared normal, the conjunctival, pupillary and palatal reflexes were present. The other reflexes, superficial and deep, were absent, except the knee jerks which were fairly active.

Slight spontaneous fibrillation was noted several times in the supinators of both forearms and could usually be brought out by flicking. Fibrillation was also occasionally noted in the remains of the left calf muscles. No sensory changes were detected.

Cerebration was normal.

In most of the affected muscles no response could be elicited to either faradism or galvanism. In the forearm a faradic, but no galvanic response was obtained.

There was nothing noteworthy in the other systems, except that she stated that she sweated easily on exertion.

The basal metabolism was + 15%.

An X ray examination of the skull revealed no apparent abnormality of the pituitary fossa.

Dr. Mark Lidwill who had this patient under his observation in 1921, has kindly let me see his notes. From these and a photograph he has let me have, I should judge that the progress of the disease has been very slow in the last six years.

Dr. Teece tested the electrical reactions on that occasion and reported:

> All the forearm muscles have a faradic response present, but markedly diminished. Faint faradic response in two, three and four dorsal interosseous muscles. Neither faradic nor galvanic response in other intrinsic muscles of hand nor in any of the intrinsic muscles of foot. No faradic response but fair galvanic response in muscles supplied by common peroneal nerves.

The family history has been carefully investigated by Dr. J. Brooke-Moore who referred the patient to me. He also gave me the report of a sister who died with similar symptoms.

The father aged seventy, mother aged forty-nine, four brothers aged thirty, thirteen, nine and five, and three sisters are well. One sister died on March 1, 1927, aged twenty, with wasting of muscles and fatty tumours in the same situations as this patient "only more marked." This case appears to have run a more rapid course after its recognition as it was first noted after appendicectomy nine months before death. She died with choking sensations, breathlessness and extreme weakness.

There is one other sister, nineteen years of age, whom I have seen. She has a considerable amount of fat diffusely distributed above the clavicles and a soft goitre of the adolescent type. The legs are decidedly thin in proportion to the upper part of the body, but no pathological change could be detected.

The occurrence of two cases with a possible early third of such an unusual condition in one family seems to justify placing them on record.

The exact relationship between the muscular atrophy and the lipomatosis is difficult to determine.

As far as the muscular atrophy is concerned, the age of onset, the appearance of a similar though more acute type of atrophy in another member of the family at the same age, its following an acute disease and being reactivated by another, the extreme changes in the legs, the retention of the knee jerks, the type of electrical reactions and the slight fibrillations suggest the neurotic or peroneal form of muscular atrophy. It would appear to have been complicated by acute multiple neuritis almost suggesting a Landrey's paralysis after influenza.

The "familial" lipomatosis renders the diagnosis more complicated.

The facial appearance rather suggests acromegaly on first sight, but this is largely due to the lipomatous state of the chin and an X ray examination of the skull and hands revealed no bony changes.

That hypopituiarism is present in my case is suggested by the position of the fat, though it is absent from the

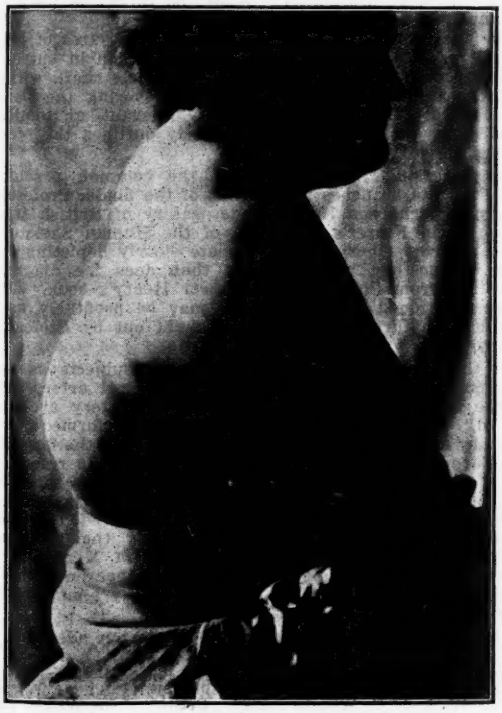

Figure III.

Figure IV.

thighs and nates, by the menstrual disturbance and by the fact that 280 grammes of glucose were taken without the appearance of sugar in the urine.

The tenderness of some of the lipomata rather suggests the type of change met with in Dercum's disease.

Reviews.

MATERIA MEDICA.

The seventh edition of Dr. Culbreth's extensive work on *materia medica* and pharmacology is to hand.[1] It is stated to be "especially designed for students of pharmacy and medicine as well as for druggists, pharmacists and physicians." This claim is certainly warranted insofar as it concerns pharmacists and druggists, but we should hesitate to think that medical practitioners would derive much benefit from its possession. The arrangement of the book is unusual, the majority of the drugs of vegetable and animal origin being set out in accordance with their botanical and zoological natural orders, irrespective of their pharmacological affinities or therapeutical applications. The classifications of medicines are thus explained: (i) Alphabetic sequence, (ii) chemical constituents, (iii) morphologic and anatomic, (iv) therapeutic effect, (v)

[1] "A Manual of Materia Medica and Pharmacology," by David M. R. Culbreth, Ph.G., M.D.; Seventh Edition, Thoroughly Revised; 1927. Lea and Febiger; Royal 8vo., pp. 1046 with illustrations. Price: $8.00 net.

natural affinities. The last mentioned is the method followed. There are preliminary chapters on "The Definition of Materia Medica and its Subdivisions," "Forms in which Medicines can be Used," "The Avenues by and through which Medicines Enter the System," "The Means by which Medicines are Transmitted through the System," "Conditions which Modify the Action, hence the Dose of Drugs." Then come the organic drugs from the vegetable kingdom, organic drugs from the animal kingdom, inorganic drugs from the mineral kingdom, organic carbon compounds, non-pharmacopœial organic carbon compounds, then a chapter on the microscope and its use in *materia medica*. Finally there is an appendix dealing with the treatment of and antidotes to poisons, prescription writing and tables of weights, measures, doses, abbreviations, constituents of leading organic drugs and pronunciations. The book contains an immense amount of botanical and pharmaceutical information. It is an excellent work of reference in botany, pharmacy and organic chemistry, but is of very little use to the practising physician. The botanical illustrations are remarkably good. A special feature is a comprehensive account of adulterations of drugs. The constituents of drugs are well explained. Therapeutic references are scanty and, as it were, just thrown in without any critical review. For instance, we read of precipitated manganese dioxide: "Good in Syphilis, Chlorosis, Scurvy, Skin Diseases, Itch, Porrigo, Stomach Pains, Pyrosis, Gastralgia, Simple Ulcers. Acts solely as a coating to the stomach, like bismuth salts." And yet it is also described as "tonic, alterative; after prolonged usage may act as cumulative poison, causing staggering paraplegia." No mention is made of the presence of vitamins in cod-liver oil. Amyl nitrite inhalation is advised in chloroform poisoning, although this would still further lower a blood pressure already perilously depressed. Gallic acid is stated to be a remote astringent: "Internally controls systemic hæmorrhages (contracts blood vessels), decreases secretion of urine and sweat." All of this is quite wrong, as gallic acid is not a remote astringent. The author is an extreme optimist when he claims therapeutic effects from the internal administration of mammary gland, thymus, kidneys, cerebrum, spleen, ovary and testis—a truly pernicious teaching. The pharmacology of the book is very poor. As an example, alcohol is stated to be a stimulant: "Stimulates brain by increasing blood supply," which is quite wrong. It is also erroneous to state that hexamin renders the urine acid. Toxicology is better dealt with, but still leaves much to be desired. For instance, antipyrin poisoning is stated to be similar to poisoning by acetanilide, whereas methæmoglobin formation which occurs in the latter does not arise in the former. Iodides are recommended in chronic lead poisoning, but it is now generally held that such treatment is detrimental by starting again the circulation of the stored-up lead. In digitalis poisoning no mention is made of the bigeminal pulse occurring in that condition. The treatment of ptomaine poisoning is given, but genuine ptomaine poisoning, as opposed to ordinary microbial infection, must be excessively rare. The pagination of the book is erratic; page xii is immediately followed by page 17. A very useful feature of the work, however, is the phonetic spelling and accenting of scientific terms as a guide to their pronunciation. A very interesting account is given of the *Coccus cacti*, now being used in Australia for prickly pear destruction. As regards botanical classification, the author makes bad mistakes. For example the *Mimosaceæ*, *Cæsalpiniaceæ* and *Papilionaceæ* should all be included in the great family *Leguminaceæ*; this family is not mentioned in the text, although the list of contents shows it apparently as a synonym of *Papilionaceæ*. Between two of these subfamilies the author places the *Krameria* family, far removed from its proper botanical classification.

To turn to matters particularly Australasian. The Queensland asthma herb, *Euphorbia pilulifera*, is credited with virtues which it probably does not possess. The habitat of *kava kava* is given as the Sandwich Islands, whereas it extends over a vast area of the Pacific Islands, including New Guinea. To say that the "natives prepare a beverage by fermenting infusion" is totally wrong. Australian wattle gum is mentioned, but this is generally considered unsuitable for pharmaceutical purposes. Duboisine is rightly stated to be a mixture of alkaloids. It is curious how much this drug is used in America and on the Continent and almost totally ignored in Australia —its native land. The Java plum or Jambul (*Eugenia jambolana*) which is indigenous also to Australia, has a widespread reputation for diabetes: "Seed and bark arrest formation of sugar in diabetes." An interesting and perhaps profitable investigation might well be made of this matter in our laboratories. Of *Melaleuca leucadendron* from which oil of cajuput is obtained, it is wrongly stated that the bark of the trunk is blackish. This is one of our indigenous tea trees; although the term is not used in the book, the author refers to it as "pepper bark." This is a sad blunder and should read "paper bark," for reasons obvious to those who know the tree. Interesting and correct information is given about Australian eucalyptus mannas, including lerp, which is caused by the agency of insects. However, too many mistakes are made concerning our eucalypts. For instance, *Eucalyptus globulus* is never called "woolly butt" or "iron bark," which are totally distinct trees; nor does it "exude blue gum." The colour of the young foliage gives it its popular name. No mention whatever is made of the fine research carried out in Sydney whereby artificial menthol and thymol can be made from the oil of one of our eucalypts. It is quite erroneous to state that *Eucalyptus globulus* is the only species having eucalyptol to an appreciable extent. It is absurd to state that eucalyptus oil is beneficial for cancer. Finally the author's explanation of the means whereby the planting of eucalyptus trees prevents malaria is totally wrong, even to absurdity.

SURGERY OF THE LONG BONES.

IN a small book entitled "Exposures of Long Bones and Other Surgical Methods,"[1] Professor Henry, of Cairo, has published a series of papers dealing with a somewhat motley group of surgical problems. In attacking each problem the author has used great enthusiasm and no small degree of originality. What the collection loses in continuity it gains in novelty and accuracy.

The first part of the book deals with exposures of long bones. In each case the approach is well thought out and is designed to effect free access to the whole shaft, whilst avoiding injury to important tissues covering the bone. The author first briefly discusses relevant anatomical details and then clearly and concisely outlines the steps in the operative procedure.

In discussing the relations of the common peroneal nerve and its branches to the neck of the fibula, Professor Henry is perhaps a little too derogatory of British textbooks, as in Frazer's "Anatomy of the Human Skeleton" there appears a very beautiful plate clearly depicting the area in question, better in fact than does the diagram (modified from Poirier) in Professor Henry's book. The above mentioned book by Frazer may be profitably used to illustrate further the points brought out by Professor Henry.

In the second part of the book such subjects as the ligation of the second part of the vertebral artery and of the first stage of the left subclavian artery are discussed. These operations will not be performed very often by any one surgeon and on that account the descriptions are very valuable. Much of the chapter on resection of the left cervico-dorsal sympathetic ganglion is a repetition of that on the ligation of the left subclavian artery and both subjects could easily be considered together. Professor Henry's method of abstracting the pituitary body from its fossa under the guidance of X rays is a masterpiece of ingenuity. It has not apparently been used on many occasions, but should greatly simplify the surgery of this difficult region.

The illustrations throughout are simple but adequate.

[1] "Exposures of Long Bones and other Surgical Methods," by Arnold K. Henry, M.B., B.Ch. (Dublin), F.R.C.S.I.; Foreword by Sir W. I. de C. Wheeler; 1927. Bristol: John Wright and Sons, Limited. Royal 8vo., pp. 88, with illustrations. Price: 10s. 6d. net.

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SATURDAY, MARCH 3, 1928.

The Endowment of Research.

The word research is often used as if it were restricted to the investigations by specially trained persons who work in the laboratory at some abstruse problems. But as research means nothing more nor less than careful study, inquiry or examination, it is obvious that no useful purpose will be served by limiting the term to one particular kind of investigation. By medical research is implied the search for the truth concerning the structure and functions of the whole or part of the body in health or in disease. The search may be carried out in the laboratory, in the clinic, in the consulting room and in the patient's home. To be of value the person conducting the inquiry must be trained to observe accurately and to differentiate between objective facts and deductions or inferences. It is essential that the things observed should be measured, weighed or recorded graphically, in order that the fresh knowledge acquired may be exact and capable of comparative evaluation. The investigator must be acquainted with the work of others on the subject of his inquiry, for unless he knows what has been done, he may waste his time following some fruitless search or he may discover something that has already been discovered by someone else. It is inadvisable for an investigator to formulate some hypothesis and then to attempt to prove it by experiment or by other form of study. It is always possible to find evidence in support of a preconceived idea. If the investigator chooses a subject for inquiry, carries out his observations and experiments and records the facts elicited in this way, he will not be misled. After he has marshalled his facts, he can evolve any hypothesis that appears to offer the best explanation.

Not every one is suited by temperament or by training to undertake research. Moreover, few medical men or women in general practice have the inclination or the time to devote to original work. On the other hand the greater part of the knowledge possessed at the present time of the structure and function of the human body in health and of the causes and nature of disease processes has been the outcome of the studies of men in general or special practice. If a practitioner has the energy and enterprise to engage in original research and makes the time for it, his work is usually unremunerated. When he passes this knowledge on to the medical world, he does this as a gift. It might be said that the publication of the results of his investigations is so good an advertisement, that he gains indirectly by an increase in practice. This argument is fallacious, for his services are sought in practice because he is skilful in the care and treatment of a particular kind of ailment, not because he has carried out original research. His fees are the same as those of the man who has never conducted research work. In these circumstances the cost of the investigations should not be borne by the keen, altruistic worker. A great deal of research is conducted by remunerated and voluntary workers at research institutions. It is true that the remuneration is low and often quite out of proportion to the value of the work. In Australia the cost of medical research is defrayed out of private funds, save at the Australian Institute of Tropical Medicine and at the Commonwealth Serum Laboratories. The Walter and Eliza Hall Trust has led the way in the private endowment of medical research. A few wealthy persons in Australia have endowed institutions or special investigations. The public in Sydney responded in a most generous manner to the invitation to contribute £100,000 for cancer research. Quite recently Mr. G. H. Bosch has given the sum of £27,000 to the University of Sydney for the specific purpose of medical research. A part of this sum is to be devoted to the investigation into the nature, cause and physiological treatment of spastic paralysis and allied conditions. Dr. N. D. Royle is endeavouring to collect the sum of £30,000 to cover the cost of these researches. It is unnecessary to refer in detail to the work carried out by him with the assistance of the late John Irvine Hunter in the past. The establishment of irrefutable evidence of the function of the sympathetic nerves in the maintenance of postural tonus of voluntary muscle

has led to the application of this knowledge to the treatment of spastic paralysis, Raynaud's disease, Hirschsprung's disease, *thrombo-angiitis obliterans* and the spastic forms of chorea with remarkable results. Much more information must be sought and found in regard to the distribution of the sympathetic nervous system and to its varied functions. The sum mentioned is needed to remunerate additional workers and to defray the ordinary charges incidental to research. It is hoped that this amount will soon be forthcoming.

In the old world and in America it is held that medical research has a claim on the surplus wealth of the very rich. A considerable amount of money is paid out of consolidated revenue in Great Britain to the Medical Research Council. The whole community benefits by medical research. It would therefore be logical to require the public through public funds to pay for this work. But since millionaires usually seek some channel for unloading their surplus wealth as they approach old age and by choosing medical research they confer a benefit on humanity as a whole, it would be unwise to exclude this source of endowment. On a previous occasion we suggested that as the medical profession gains directly by the advance of medical knowledge, it would be reasonable to levy a small sum from each registered medical practitioner each year for this specific purpose. There are thus three possible sources of income for medical research which should be exploited. Up to the present medical research has been starved in Australia. It is essentially costly. But no price is too great if there is a prospect of gaining thereby a mastery over disease.

Current Comment.

SYPHILIS AND PREGNANCY.

That syphilis is a most frequent cause of disease in pregnancy and of neo-natal death is commonly recognized. Obstetricians and medical practitioners accept the fact and doubtless undertake adequate treatment when syphilis in its grosser manifestations obtrudes itself. In spite of this knowledge and readiness to act there is danger that association with obvious syphilis may lead to neglect of its more insidious forms. Moreover, through working in a groove many may lose sight of the possibilities of prevention. The subject is an old one, but for the aforementioned reasons its resurrection is justified.

Apart from the recognition of the *Spirochæta pallida* in a smear from a lesion the most reliable guide to the diagnosis of syphilis in a pregnant woman, as indeed in any other person, is the result of the Wassermann test. Many studies of the results of this test in pregnant women have been made. The most complete Australian work of this nature is that carried out by Hamilton Fairley and Fowler and published in this journal as long ago as December, 1921. Of 705 women examined 53 yielded a response to the test, a percentage of 7·5. Of these women 315 had been seen in the ante-natal department of the Women's Hospital, Melbourne, 290 in the labour ward and 100 had been admitted suffering from abortions. The number of infants examined was 273 and 24 yielded reactions, a percentage of 8·8. One of the most important facts emphasized by Fowler was that only a small proportion of patients presented recognizable signs or symptoms—the infection was mostly latent. He pointed out also that the obstetrical history is by no means so valuable an indication of syphilis as is usually thought and that a history of repeated abortions may more often than not mislead the medical attendant. Fowler thus pointed the way. He showed that the control of syphilis was defective in several respects. Syphilis cannot be treated unless it is recognized and he demonstrated the possibility of recognizing it. At the same time he was not unmindful of the difficulties associated with routine examination and treatment especially in regard to post-natal treatment and the tracing and treatment of collaterals.

In the treatment of the syphilitic mother, the fœtus must not be overlooked. Emphasis needs to be laid on the fact that the production of a response to the Wassermann test in the serum of the mother does not in itself indicate syphilis in the fœtus. Fowler and Fairley referred to this. In establishing a diagnosis of syphilis in an infant some additional evidence is necessary. If the blood of the infant reacts to the Wassermann test, no further evidence need be sought. If this test cannot be made, however, the standard used by Eardley Holland and confirmed by Taylor and Forrest-Smith, may be adopted. Holland found that the combination of a response in the maternal blood to the Wassermann test with osteochondritis or typical syphilitic placental changes or with both together must be accepted as sure evidence of fœtal syphilis. Holland has pointed out that osteochondritis by itself is generally accepted as sufficient evidence. Taylor and Forrest-Smith found definite osteochondritis in eighteen out of twenty-three syphilitic fœtuses and probable osteochondritis in the remaining five. In sixty-six non-syphilitic fœtuses there was only one instance of probable osteochondritis. At the same time it must be recognized that there should not be much difficulty

about the routine performance of the Wassermann test on the blood of all infants born in public hospitals. A. M. Wilson has laid stress on this point and on the economic value of the children saved from neo-natal death, perpetual ill-health and mental deficiency.

A useful analysis has recently been made by Gladys H. Dodds of the results of the response to the Wassermann test in two thousand consecutive pregnant women.[1] The blood for the test was taken during the patient's first visit to the clinic when the ordinary routine clinical examination was carried out. After a positive result was reported, an attempt was made to elicit a history of infection or of primary and secondary lesions and "a more thorough examination was made for specific manifestations." Anti-syphilitic treatment was given at the clinic and the patient was observed during the whole of her pregnancy. The majority of infected women were confined in the venereal diseases department of the hospital and the Wassermann test was carried out on the blood of the cord, on the blood of the mother during the puerperium and occasionally on the blood of the infant. After confinement the patients were transferred to other venereal diseases treatment centres. Of the 2,000 women 1,870 failed to yield a reaction. Of this number fifteen were nevertheless regarded as syphilitic. Three of these had primary sores on admission; four women were congenital syphilitics all of whom had had some, but irregular treatment; three had been under treatment for syphilis when they became pregnant; one had gummata on the thighs and around the vulva and anus; two women showed no signs of syphilis, but their children were attending for anti-syphilitic treatment and they refused treatment for themselves; the remaining two were delivered of macerated fœtuses which gave evidenc of secondary syphilis. Of the 130 women whose serum did not fail to react, 73 either gave a "+ + +" response at the first or subsequent test or were sent from a venereal disease centre with a history of having given such a response. Six were reported as having given a "moderately strong positive" result. Twenty-eight gave a "weak" response. Seventeen gave a response which was regarded as "doubtful." The serum of six was anticomplementary. There were thus 145 women who might reasonably be regarded as syphilitic. This gives a percentage of 7·25, a figure which is in close agreement with that of Fairley and Fowler. Dodds points out, in the same way as the Australian observers did, that the first evidence of syphilis and in some cases the only evidence was a response to the Wassermann test. She also states that several of the infections would have been missed if the test had not been applied as a routine measure.

The Melbourne observations of 1921 and those now reported by Dodds were undertaken to demonstrate important clinical facts and to point the way to preventive measures of the first importance. It has been shown by some Australian workers that women are intolerant of investigations of this sort and in one instance at any rate it has been necessary to discontinue efforts as to the introduction of routine Wassermann tests.

Marshall Allan in his report in 1926 on ante-natal work in Brisbane stated that Wassermann tests were made only when syphilis was suspected. This is unsatisfactory from the preventive point of view and Marshall Allan would be the first to admit the fact. There are other factors to be considered besides the attitude of the patient—such questions as finance and laboratory personnel—but these are not insuperable. In work of this kind tact must be used and an allowance made for the temperament of Australian women. For example women whose latent syphilis is discovered only by their response to the Wassermann test, should not be branded by transfer to a venereal disease department; less obvious means of isolation can be arranged. After-treatment can be carried out in the out-patient clinic which is not branded as exclusively for the treatment of patients with venereal disease. At the same time a suggestion recently made in these pages by Southby might well be carried into effect. It should be possible for mothers and their babies to be treated in the same out-patient department. The insistence on separate departments for children and adults in this matter is an unnecessary hardship on the mother. The important point is that routine examination of the blood by the Wassermann test should be set in the forefront of investigational methods at public hospitals, for by this means alone can a large amount of syphilis be discovered and eliminated. When the routine in public hospitals is established, it may be possible to extend the practice in the work amongst private patients.

[1] *The Journal of Obstetrics and Gynæcology of the British Empire*, Winter Number, 1927.

A GREAT MEDICAL JOURNALIST.

At the end of the year that has closed eight weeks ago Sir Dawson Williams tendered his resignation to the Council of the British Medical Association after years of diligent and valuable service. There are few who have recognized the immense influence exercised by him through *The British Medical Journal*. He was appointed editor of that important journal in 1898 and for many years moulded the destinies of the medical profession through the sane and judicious conduct of the journal with the aid of Charles Louis Taylor. Not only the medical profession in Great Britain, but also the whole of the educated community learned to esteem the man and his abilities. At the end of forty-two years of practical medical journalism and immense self sacrifice for the medical profession he has given over the reins to younger hands. It is not likely his successor will achieve the eminence that he attained. It is almost certain that Sir Dawson Williams's place in medical journalism side by side with Thomas Wakley, Ernest Hart, Charles Louis Taylor and Sir Squire Sprigge, will be retained. He has earned our lasting gratitude.

Abstracts from Current Medical Literature.

GYNÆCOLOGY.

Menstruation and Thyreoid Function.

H. GARDINER-HILL AND J. FOREST SMITH (*Journal of Obstetrics and Gynæcology of the British Empire*, Winter Number, 1927) have investigated the relation between menstruation and thyreoid function by studying three hundred patients with thyreoid disease. They conclude: (i) that when menstruation is affected by a given thyreoid fault the alteration tends to be in a uniform direction, (ii) that the weaker the thyreoid, the greater the flow. The series included nine cretins, one hundred patients with adolescent goître and with varying degrees of thyreoid disturbance, ninety-six patients with exophthalmic goître and hyperthyreoidism, forty-one with myxœdema, twenty-four with parenchymatous goître and twenty-two with simple adenoma of the thyreoid. In the cretins menstruation was very late in spite of thyreoid medication, but, once started, it was normal and regular. Of the adolescent goîtres 79% seemed to be of the colloid variety and were accompanied by varying degrees of thyreoid function and 16% were ordinary examples of exophthalmic goître. The basal metabolic rate was over + 10% in all the latter and in general the basal metabolic rate figures agreed very closely with the clinical grouping. In 63%, however, of those colloid goîtres in which a clinical diagnosis of hypofunction was made, the basal metabolic rate was more or less normal, a fact which provides confirmation of the view that many such goîtres are compensating enlargements. Menstruation was regular and normal in about half the patients with colloid goître, whatever the state of the thyreoid and in most of the remainder it varied inversely with the thyreoid activity, amenorrhœa being associated with hyperthyreoidism and menorrhagia with hypothyreoidism. The exophthalmic goître patients with their high basal metabolic rate mostly complained of amenorrhœa. The group of adult exophthalmic and hyperthyreoid patients gave similar results; 57% of those with definite primary Graves's disease had delayed or irregular periods, whilst 42% menstruated normally. Of those with less thyreoid enlargement and no definite ocular signs only 27% had scanty menstruation, while 65% were normal. When myxœdema developes before the menopause, it is often accompanied by menorrhagia and rarely by amenorrhœa. In several of the authors' patients, however, it was preceded by a natural menopause and they suggest that this kind of occurrence accounts for the impression that myxœdema causes amenorrhœa. They consider that the effect of the disease on the œstral function can be estimated only by taking into account whether it occurs before a natural menopause, after a natural menopause or after a premature one. If it occurs before the menopause, they find that the natural reaction is menorrhagial; two-thirds of their patients fall into this group. In the remaining third menstruation had been regular until the menopause and myxœdema had developed a considerable time after it. Three patients who had had a premature menopause, showed signs of the disease so long afterwards as to make it very unlikely that the cessation of menstruation was due to the thyreoid disturbance.

Some Pathological Forms of Corpus Luteum.

WILFRED SHAW (*Journal of Obstetrics and Gynæcology of the British Empire*, Summer Number, 1927) continuing his studies of the *corpus luteum*, has published his conclusions in regard to some pathological forms. *Corpus luteum* hæmatomata are determined essentially by primary ovarian hyperæmia. Intraperitoneal hæmorrhage may be produced either by the addition of a second factor such as trauma or may arise independently of this further factor if the hyperæmia is extreme. In the normal mechanism of atresia of the follicle atrophy of the granulosa cells is the rule. Sometimes they may undergo luteinization and give rise to cysts to which the term granulose lutein cysts has been applied. Pathological forms of the follicle have been described. Such follicles are characterized by containing tarry fluid and by having lutein tissue in their walls. Three types have been described, namely tarry theca lutein cysts, tarry granulose lutein cysts and tarry *corpus luteum* cysts. Such tarry cysts may develope a heterotopic epithelial lining which has been shown to arise from endothelial cells by a process of metaplasia. In old forms of such cysts the epithelium persists, the lutein cells disappear and are replaced by hyaline tissue. The tarry cysts may rupture and lutein cells become implanted upon adjacent organs in the pelvic cavity. The ætiology of the tarry cysts is unknown. They are not inflammatory in type. They may be related to ductless gland disturbances.

Rhythmic Contractions and Peristaltic Movement in the Fallopian Tube.

I. C. RUBIN (*American Journal of Obstetrics and Gynecology*, November, 1927) has carried out a series of investigations on the properties of the Fallopian tubes as revealed by gas insufflation. He concludes that tubal contractions occur in the presence of normal patency. These can be stimulated by passing gas gently through the tubes and the contractions can be recorded by a kymograph. They are totally absent in tubes that have been ablated or closed or that have been affected by stricture. He draws definite conclusions from the type of kymographic record obtained. The spasm on initial high pressure is followed by a drop in pressure which is succeeded by regular rhythmic contraction waves on the kymograph. Narcosis definitely lessens the rate and amplitude. The character of tubal contraction varies with the stage of the menstrual cycle. The author has also found the contractions to be definitely affected by such conditions or grave functional amenorrhœa in young women and by the preclimacteric and climacteric states.

Abdominal Hysterectomy.

J. C. MASSON (*The American Journal of Obstetrics and Gynecology*, October, 1927) discusses the relative merits of total and subtotal hysterectomy in benign tumour of the uterus. On account of the fact that it is generally reserved for patients with advanced and complicated lesions, there is a tendency to regard total hysterectomy as a more difficult operation than it is. When the uterine condition is suitable myomectomy should be performed during the childbearing period. Should hysterectomy be necessary and if the condition of the cervix warrants it, subtotal removal may be performed and some of the endometrium above the internal *os* should be allowed to remain in order to retain the menstrual flow. Total hysterectomy is to be preferred in most instances if the patient is in good condition. In difficult cases the body and cervix may be removed in two stages. If severe lacerations are present, the cervix should be removed because of the danger of malignant disease and in such circumstances the cervix may be treated with the cautery before the abdomen is opened to avoid infection of the peritoneum or if purulent endometritis be present, the external *os* may be sutured. Thorough preparation of the vagina is essential in all operative procedures. The necessity for thoroughly investigating the state of the pelvic floor and other gynæcological conditions is insisted upon before a decision is made in regard to the type of operation to be performed; neglect of this is responsible for many of the objections to total hysterectomy such as vaginal hernia, shortening of the vagina *et cetera*. Other objections such as injury to the bladder, ureters and sigmoid depend upon the skill of the surgeon and are apt to be over-emphasized. In post-operative shock the intravenous administration of gum-acacia solution is preferable to blood transfusion. Prophylactic measures, such as postural and breathing exercise and the administration of thyreoid extract, are of value in preventing post-operative complications.

Transplantation of the Ureters into the Bowel.

R. PETERSON (*The American Journal of Obstetrics and Gynecology*, October, 1927) reports two cases of successful transplantation of the ureters into the bowel in patients who had incurable vesico-vaginal fistula. The great obstacle to success is ascending renal

infection. The greatest care must be taken to avoid injury of the wall of the ureter and constriction where it penetrates the bowel. A longitudinal incision is made through the serous and muscular coats of the bowel and a stab wound through the mucosa. The extraperitoneal route is chosen and only one ureter is dealt with at a time. It is stated that pregnancy may go on quite normally in these patients.

OBSTETRICS.

Quantitative Variations in the Amniotic Fluid.

F. J. TAUSSIG (*The American Journal of Obstetrics and Gynecology*, October, 1927) reports an investigation into thirty-two cases of hydramnios and one case of oligohydramnios. Biochemical analysis of the membranes and fluid show that the amnion has a metabolic function. No histological changes in the amnion or chemical changes in the fluid have been found to explain the cause either of its excess or deficiency. Among the more important factors which play a part in determining the quantity of the fluid, are the size of the placenta and the resistance to expansion of the uterus by abdominal muscles. There is evidence that the fœtus swallows amniotic fluid which is absorbed into the circulation by way of the intestines and so may be returned to the maternal circulation. Hydramnios is common when the fœtus is deformed in such a way as to prevent swallowing and where the fœtus has any obstruction to absorption from the intestines. The amniotic fluid may be considerably reduced by diseases in the mother which produce dehydration, such as cholera.

Contraction Ring Treated with Adrenalin.

M. P. RUCKER (*The American Journal of Obstetrics and Gynecology*, November, 1927) holds that there is a distinct clinical difference between the contraction ring which obstructs labour, and the retraction ring which becomes so pronounced when labour is obstructed by extrinsic causes. The ætiology is obscure; faulty innervation and irritation of the uterus have been mentioned as causes. The action of adrenalin has been studied by many observers. Adrenalin does not cause an increase in uterine contractions. In most cases a hypodermic injection of five drops of a one in a thousand solution causes a cessation of contractions and a relaxation of Bandl's ring. Two cases are quoted supporting the use of doses of adrenalin of this size in dystocia due to a contraction ring. The rationale of its action depends upon the fact that the involuntary nervous system is divided into two parts, the sympathetic and the parasympathetic or bulbo-sacral. When these two systems innervate the same organ their action is antagonistic. This is similar to the innervation of the heart, the cardiac sympathetic nerves when stimulated cause acceleration, whereas the stimulation of the parasympathetic (vagus) causes slowing or even stoppage. These actions have not been satisfactorily studied upon the uterus, but there is some pharmacological evidence to show that the uterine sympathetic system has an inhibitory effect. The action of adrenalin is considered to be identical with that of stimulation of the sympathetic. The formation of a contraction ring is assumed to be due to an abnormal sensitiveness of the parasympathetic system. If this be the case, the exhibition of adrenalin would be physiologically and pharmacologically correct.

The Induction of Labour.

JOHN HEWITT, DOROTHY TOWART AND DOUGAL BAIRD (*Journal of Obstetrics and Gynæcology of the British Empire*, Autumn Number, 1927) have attempted induction in seventy-four patients and have compared the relative merits of instrumental and medical methods of inducing labour. Bougies were introduced in the former and Watson's method was used in the latter. They concluded that the introduction of the intrauterine bougie is a more certain method of inducing labour than Watson's medical technique. Reinsertion of bougies is more successful than repetition of the medical treatment. Watson's method is particularly ineffective in inducing premature labour. Its inadequacy is progressively more apparent the earlier the attempt is made. The bougie is equally effective throughout the various stages of pregnancy. A preliminary unsuccessful attempt by Watson's method does not increase the success of subsequent instrumental induction. Certainty of action is the only prominent advantage of instrumental over medical induction. The dangers associated with medical induction are of less common occurrence than those associated with the instrumental method. Further the dangers of the latter (notably sepsis) can arise even if induction fails; those following medical induction can occur only if labour supervenes. Grave septic infection is not uncommon after the use of the bougie. The time interval is neither the sole nor the main factor in the production of sepsis. The authors suggest that there is less danger in leaving the bougies in the uterus for more than twenty-four hours than in their reinsertion. The number of bougies introduced bears no relation to the success of the method. The coincident administration of pituitrin tends to hasten the action of the bougies already within the uterus. Watson's method may be employed with success to reinduce uterine contractions when the first stage has become arrested. The probable failure of Watson's method is a safeguard against accidental inductions of premature labour by miscalculation of dates as in "inductions of convenience" and in cases of supposed postmaturity. Honeyman's investigations suggest that pituitrin is present in the blood in increased amounts during normal labour. The authors recommend: (i) that when there is no urgency Watson's method should be tried and repeated if necessary; (ii) that should the condition be or become urgent, instrumental induction should be employed and (iii) that whenever bougies are used, pituitrin should be injected intramuscularly at regular intervals.

Cervical Lacerations.

J. B. DE LEE (*The American Journal of Obstetrics and Gynecology*, October, 1927) issues a preliminary report upon an investigation into the mechanism of cervical tears during labour. The author inspects the cervix after delivery even in the absence of hæmorrhage. The amount of damage caused by natural labour is great and very complex. In addition to the ordinary laceration at the sides leaving an anterior and a posterior lip, two other varieties are described. The muscular tissue may may be torn underneath the mucous membrane without the latter appearing to be damaged; this laceration can be discovered only by noting the deformity produced; it should be repaired by slitting the mucous membrane and thus converting the injury into a tear of the common variety. The more serious variety is characterized by a tearing of the mucous membrane circularly at the junction of the internal with the external mucosa; the internal mucous membrane becomes very œdematous and is everted. The repair of such an injury is extremely difficult and the author makes no final recommendation as to a suitable method. The damage to the cervix may be complicated by the presence of all of these varieties or of any two of them at one time.

Placenta Prævia.

A. H. BILL (*The American Journal of Obstetrics and Gynecology*, October, 1927) advocates prophylactic blood transfusion in *placenta prævia* and delivery by Cæsarean section. Too little attention has been paid in the past to the vicious circle set up in this condition, the loss of blood causing uterine atony and this in turn causing hæmorrhage. The amount of blood lost prior to delivery is quite as important a consideration as the method of delivery and has a definite bearing on the ability of the patient to stand any operative procedure and on the problem of *post partum* hæmorrhage. The patient needs the greatest stimulation from transfusion at the time of delivery, so that there may be immediate contraction of the uterus to prevent further loss of blood. Moreover it is futile to give transfusion to a patient after the critical stage has passed. Cæsarean section is the method advocated by the author, but no method of delivery is safe in the more serious forms of *placenta prævia* without prophylactic blood transfusion.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE SECTION OF NEUROLOGY AND PSYCHIATRY OF THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the B.M.A. Building, 32, Elizabeth Street, Sydney, on September 20, 1927, PROFESSOR A. E. MILLS in the chair.

The Integration Concept and Psychiatry.

PROFESSOR W. S. DAWSON read a paper entitled "The Integration Concept Applied to Psychiatry" (see page 265).

DR. H. C. MCDOUALL thanked the speaker for his very interesting address which covered a wide field and which gave an air of hopefulness to an intricate subject. He was glad that the speaker had emphasized the importance of psychiatric clinics at general hospitals. Experience at these clinics had shown the importance of environment as a factor in the cause of nervous and mental troubles and even removal from the family was often required in treatment.

DR. C. A. HOGG stated that he had listened to the address with much pleasure. He was very anxious to stress the advisability of special wards being attached to general hospitals for patients with diseases of the nervous system. He remarked that Dr. A. Davidson since the year 1918 had taken much interest in this aspect of mental hygiene. He regretted that there was no Mental Deficiency Act in New South Wales and that so little was done for the delinquents.

DR. ANDREW DAVIDSON expressed his great pleasure in listening to the oration which showed great ability in putting the material in order. He stated that Hughlings Jackson had been years ahead of his time and that many of the theories current in psychiatry had been forecasted by Hughlings Jackson many years previously. Dr. Davidson said that since the year 1911 he had been urging public hospitals to make special provision for psychiatric clinics and in Sydney Saint Vincent's Hospital was the first one to commence this work. He expressed pleasure at the excellent work that was being done amongst children in the Department of Education and also in the children's courts.

DR. HARVEY SUTTON said that he wished to stress the importance of heredity as a factor in nervous disorder and suggested that neurologists should study their own families and forebears as they would have access to valuable material. He stated that the Department of Education was acquiring a large amount of valuable material which could be made available for research in mental hygiene. The problem of hysteria and neurasthenia amongst school teachers was a serious one and there was no guide available as to what types of candidate would be suitable for the teaching profession. He hoped Professor Dawson would be able to give assistance to general practitioners in dealing with the neuroses, as the present treatment of nervous conditions in general practice left much to be desired. He hoped also that more organization would be undertaken in the treatment of stammering and stuttering. In dealing with mental deficiency in the public schools the greatest problem was the training of teachers for feeble minded children. It was found that between 0·75% and 1·25% of children in the metropolitan area needed special schools or special class instruction. Moreover, 17% of delinquents at the children's courts were unsuitable for ordinary schools. He was hoping that a psychologist would soon be appointed and attached to the children's courts where a special study of the children who returned to the courts should be undertaken. He also urged the necessity of the establishment of an epileptic colony in New South Wales, because the control of epileptics was so necessary and often led to more beneficial results than treatment by drugs. He also stressed the importance of providing more playgrounds for children in the city and of encouraging a general activity in sport rather than an interest in the sports of others. He hoped that vocational guidance would not be left to the psychologist, as he was of the opinion that the problem was one which should be undertaken by the psychiatrist.

DR. S. J. MINOGUE felt that the whole position of psychiatry was unsatisfactory and that modern psychiatry was "lost in the exuberance of its own verbosity and could not find its way out." It was most important to endeavour to find out the factors that were influencing patients, and the diagnosis might be disregarded altogether. He regretted that the attitude of the general practitioner to psychiatry was so apathetic.

DR. W. L. MILLET, of the Queensland Branch, feared that general hospitals in small towns would not be able to manage psychopathic wards until the general practitioner had better knowledge of psychiatry.

DR. DONALD FRAZER stated that the paper had shown that there was a "swinging of the pendulum" towards the psycho-genetic theory of causation in mental disorders. He stated that suggestion played an important part in psycho-analysis and was of much help in the treatment of stammering. He asked the speaker if he could give information as to the value of psycho-analysis as a form of treatment.

DR. RALPH NOBLE thanked the speaker for the paper which gave a most comprehensive survey of the field of psychiatry. He wished to stress the importance of psychological conflict as a factor in the causation of the neuroses and reminded the meeting of the importance of the late Dr. W. H. R. Rivers's theory of hysteria, namely that there was always an unconscious motive which was responsible for the hysterical symptoms. In treating hysteria it was always wise to endeavour to ascertain what conscious or unconscious benefit the patient was gaining by the illness. He felt that suggestion played a large part in the process of psycho-analysis, especially as the suggestion was indirect or unwitting and this form of suggestion was much more potent than direct suggestion. He hoped that much more would be done in Australia in mental hygiene by an investigation of the problems which were so abundant, and by a combined effort of members of the section.

PROFESSOR A. E. MILLS stated that the Section was to be congratulated on the excellent paper which had been presented. He said that the questions of nutrition were most important in psychological disorders. He felt that the children's court needed a psychiatrist rather than a psychologist on its staff for the investigation of cases coming before it.

He added his own personal deep appreciation of Professor Dawson's address.

In his reply Professor Dawson thanked the meeting for their warm acceptance of his paper. He stated that there was need for more cooperation in the field of psychiatry and he felt that work with children should yield most benefit. He hoped that the discussion at the meeting would lead to cooperation amongst members in attacking the practical problems which existed on all hands.

A MEETING OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Medical Society Hall, East Melbourne, on February 1, 1928, DR. J. NEWMAN MORRIS, the President, in the chair.

Tuberculosis.

DR. J. BELL FERGUSON read a paper entitled "Some Remarks on an Anti-Tuberculosis Scheme for Victoria" (see page 271).

DR. L. S. LATHAM desired to congratulate Dr. Bell Ferguson on the very excellent paper he had presented. In any scheme to combat tuberculosis it was most essential to have an able and enthusiastic man to direct the campaign and to secure the cooperation of the medical profession and the community at large. He thought that it was a source of gratification to the Branch that the services of Dr. Bell Ferguson had been secured. He had been very much impressed by the good work of the sanatoria and the results obtained in Wales in combating tuberculosis.

In London a large number of young men were being trained to become tuebrculosis officers. It was essential for Dr. Bell Ferguson to have well trained men. He hoped that the new director would be able to mobilize for diagnostic purposes the forces available in general

hospitals. In London, where various special hospitals were freely used for this purpose, he had been impressed by the number of patients, diagnosed as being non-tuberculous, who nevertheless presented suspicious features. It was necessary to formulate definite criteria to serve as a basis for diagnosis and classification. It should be remembered that many patients, not actually tuberculous, might benefit by sanatorium treatment. For the success of Dr. Bell Ferguson's campaign money, for both staff and equipment, was essential. He hoped that money would be made available and prospective testators might be induced to help in this respect.

He thought that existing units should be improved and made as nearly perfect as possible in order that public confidence in them might be gained.

One of the most pathetic things about institutional treatment was the tendency of some to think that once a patient had been admitted, all that was necessary had been done. In reality this was only the beginning of the problem.

DR. WALTER SUMMONS said that the scheme put forward by the State Health Commission, of which he was a member, was essentially the same as that outlined by Dr. Bell Ferguson. The Commission had recommended the appointment of a Director of Tuberculosis and he was glad to welcome Dr. Ferguson in that position. Already it had also been responsible for the establishment of institutions at Janefield for women with advanced tuberculosis and at Mont Park for male patients in the early stages. It was obvious in medical work in the community that tuberculosis was not so prevalent as it had been in the past. He did not think it always advisable or necessary to keep strictly to the regulation which required the notification of closed tuberculosis as tuberculous peritonitis.

The cure and prevention of tuberculosis was more a financial than a medical problem. Varying injection treatments had been tried from time to time, but none to his mind was satisfactory. In certain selected cases artificial pneumothorax was beneficial.

Though patients with open lesions were probably the greatest source of infection, yet milk and milk products undoubtedly gave massive doses to certain individuals and infection resulted. Milk might be controlled by Pasteurization, but he still feared the harm done by milk products as butter and cheese. The human type of bacillus predominated in human lesions and he wondered whether in the human body the bovine type became transformed into the human after infection.

In any antituberculosis scheme all could not be done by full time officers. A big part had to be played by the general practitioner. Dr. Bell Ferguson was not aware yet of the arrangements that were available at the big public hospitals for disinfection of clothing. Burning, however, was the best means of disinfection after the death of a patient.

In tuberculosis institutions he thought it desirable to have a number of young graduates who stayed for two or three years, rather than that all the staff should be composed of permanent well paid officers. He had been very pleased to hear Dr. Bell Ferguson and wished him every success.

DR. STANLEY ARGYLE had listened with very great pleasure to the plan of campaign as outlined by Dr. Bell Ferguson. There were many difficulties to be overcome. As an administrator he had travelled the State and had been very disappointed at what was being done. Tuberculous patients had been sent to sanatoria and it had then been considered that responsibility ceased. No provision had been made for the patient's future or for the maintenance of his dependants. Idleness in sanatoria was too prevalent and he thought it a great hindrance to the patient's recovery. He hoped that the failure in Great Britain to provide occupation other than that of the patient's original trade would not discourage similar attempts being made in Australia. He had been very pleased to hear Dr. Bell Ferguson advocate Pasteurization of milk. Contamination of milk was bound to take place, no matter how close the inspection was. Raw milk should not be given to young children unless it was absolutely above suspicion. One cow's milk was likely to be more dangerous than the mixed milk of a herd, because in the latter considerable dilution of bacilli took place and tubercle bacilli did not multiply rapidly in milk. He thought that a large proportion of children who developed bovine tuberculosis, received their infection from milk.

He was generally in accord with the proposals as outlined by Dr. Bell Ferguson. The establishment of sanatoria was only a small part of the campaign. Education of the public, the coordination of the activities of the general practitioners and the State school medical inspectors *et cetera* were all necessary.

He hoped that the decision to close Amherst would be reconsidered. It was certainly badly laid out and needed improvement, but it was in a situation where no other institution was available and the climate was admirable. He thought that wards should be established in general hospitals for patients with acute tuberculosis and also for those with early tuberculosis for observation and for use in the training of medical students.

He was sincerely grateful to Dr. Bell Ferguson for his able and comprehensive paper.

DR. A. R. HAYWOOD discussed in detail the abuses which existed in the collection and distribution of the city milk supply. He thought that, if the dairy farmer practised steam sterilization and if the milk were then cooled and Pasteurized, a satisfactory milk supply would be obtained. The distribution of milk should not be carried out for private gain, but should be controlled by the State or the City Council. Dr. Bell Ferguson had not mentioned the harmful effects on tuberculosis of over-indulgence in alcohol. He thought that in some cases it was a very important factor.

He deplored the high incidence of tuberculosis in medical students and thought that this might be due to overstudy and coincident exposure to infection in the course of their hospital work. A good deal might be done to prevent this if students were medically examined at periodical intervals.

DR. F. L. DAVIES said that he had understood from Dr. Bell Ferguson's remarks that he considered home treatment to be as good as that obtained in sanatoria. In view of this he would like to ask whether it was wise or just that a returned soldier should be refused extra pension rights unless he went to a sanatorium. He instanced the case of a tuberculous returned soldier who had been better contented and had improved much more at home than in an institution, but as a result had been unable to obtain his extra pension.

He had been pleased to hear during the course of the discussion that there were still some ways in which a general practitioner could be of use.

DR. E. ROBERTSON said that he would like to thank Dr. Argyle for being responsible for the presence of Dr. Bell Ferguson who possessed a delightful personality. Owing to lack of money Dr. Bell Ferguson had not been able so far to put much of his programme into effect, but enough money had been obtained to build a bureau.

The Pasteurization of milk was a necessity. Tubercle bacilli were found in 5% and tetanus in 25% of the samples of fæces of healthy cows.

It was absolutely necessary that patients in sanatoria should be taught to work, as it helped them in no small measure to recover. In order to achieve this the physician in charge must possess the necessary personality.

It was most important that efforts should be directed not only to cure but also to prevent the spread of tuberculosis. In order to achieve this a well organized scheme with a central controlling body was necessary. In Boston everything connected with health was directed from the Health Centre and any individual suspected of having tuberculosis could be examined and his sugsequent treatment, whether by his own doctor or in a public institution, arranged for.

DR. J. NEWMAN MORRIS expressed his appreciation of Dr. Bell Ferguson's paper. Dr. Bell Ferguson would probably have been glad to have heard the opinions of

general practitioners on their relationship to the scheme he had outlined. He thought that the main problems were those of domiciliary treatment and the provision of facilities for diagnosis.

DR. BELL FERGUSON in reply said that he was not attempting to foist a new idea, but to establish a well tried and proven scheme, suitably modified to the need of the community. In order to do this some money must be spent and he would welcome a genius capable of goading the powers that be into action. Keen and enthusiastic personnel was absolutely necessary and medical practitioners must be trained to recognize early cases. Existing units were being improved and reorganized. In the treatment of tuberculosis graduated rest and exercise were most important.

In reply to Dr. Summons he thought that cases of non-pulmonary tuberculosis should be notified. Statistics obtained in this way were helpful in determining the percentage of cases due to milk infection. In Edinburgh 25% of the city milk supply contained tubercle bacilli. All efforts to transform the bovine to the human type of organism had failed.

He was strongly opposed to idleness in sanatoria and those institutions where graduated exercises were in vogue, were much easier to manage. He agreed with Dr. Argyle that the establishment of sanatoria was only a small part of the problem and that beds should be made available in general hospitals for the education of medical students.

In reply to Dr. Davies he said that the main advantage of sanatoria was the opportunity provided for the education of the patient. He thought it unreasonable to withhold a pension if a patient refused to enter an institution.

He thought that great assistance could be rendered by the general practitioner who was always willing to help when properly approached.

He agreed with Dr. Haywood in the suggestions he had put forward with regard to the provision of a satisfactory milk supply and the periodical examination of medical students.

In conclusion he desired to thank the various speakers and to hope that he would be able to obtain the support of the medical profession in the carrying out of his scheme.

MEDICO-POLITICAL.

A MEETING OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION AND OF THE MEDICAL SOCIETY OF VICTORIA was held at the Medical Society Hall, Albert Street, East Melbourne, on February 1, 1928, DR. J. NEWMAN MORRIS, the President, in the chair.

The Honorary Treasurer, DR. C. H. MOLLISON, presented the Balance Sheets of the Victorian Branch of the British Medical Association and of the Medical Society of Victoria. The Balance Sheets were adopted.

VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION.

STATEMENT OF RECEIPTS AND PAYMENTS FOR PERIOD FROM JANUARY 11, 1927, TO JANUARY 11, 1928.

RECEIPTS.

January 11, 1927.	£ s. d.	£ s. d.
To Balance, Bank of Victoria Limited, Melbourne ..	260 10 4	
„ Cash in Hand	12 0 0	
		272 10 4
January 11, 1928.		
„ Subscriptions—		
Metropolitan Members ..	2,925 18 9	
Country Members	1,550 2 0	
Junior Members	555 9 0	
Capitation Grant, London *et cetera*	1 12 3	
		5,033 2 0
„ Clerical Work for Members	37 5 6	
„ Clerical, Obstetric Research Committee	100 0 0	
„ Clerical, Permanent Post-Graduate Committee ..	25 0 0	
		162 5 6
„ Refund Expenses *re* Hall ..		3 5 0
„ Sale Hospital Report Forms		0 15 6
		£5,471 18 4

PAYMENTS.

January 11, 1928.	£ s. d.	£ s. d.
By Medical Society of Victoria		2,227 8 3
„ *The British Medical Journal*		1,714 2 9
„ Transfer to Building Fund		415 0 0
„ Federal Committee		130 8 0
„ Salaries—		
Assistant Secretary ..	£222 1 8	
Assistant Librarian ..	158 14 2	
Office Clerk	46 16 0	
		427 11 10
„ Rebates to Divisions		95 0 9
„ Postages, Duty Stamps *et cetera*		78 4 11
„ Printing		36 11 2
„ Stationery		83 16 6
„ Commission on New Members		3 15 0
„ Advertising		11 2 0
„ Audit Fee, 1926		3 3 0
„ Telephone		8 14 4
„ Clerical Assistance		2 14 0
„ Electric Light and Power		18 13 9
„ Legal Expenses		74 6 6
„ Repairs *et cetera*		10 11 11
„ Travelling Expenses		3 7 3
„ Bank Charges		6 4 11
„ Insurance		0 11 6
„ Donation, John Vale Scholarship	£5 5 0	
„ Wreaths	3 3 0	
„ Lanternist	1 11 6	
„ Acts and Regulations	2 1 0	
„ Expenses, Eastern Subdivisional Meeting	1 0 0	
„ Binding Reports and Minutes	1 4 6	
„ Sundries	3 8 6	
		17 13 6
„ Balance, National Bank of Australia Limited	90 16 6	
„ Cash in Hand	12 0 0	
		102 16 6
		£5,471 18 4

Compared with the Books and Accounts of the Victorian Branch of the British Medical Association and found to be in accordance therewith.

J. V. M. WOOD & CO., F.I.C.A.,
Incorporated Accountants and Auditors.
Melbourne, January 27, 1928.

C. STANTON CROUCH,
Secretary.
CRAWFORD H. MOLLISON,
Honorary Treasurer.

MEDICAL SOCIETY OF VICTORIA.

STATEMENT OF RECEIPTS AND PAYMENTS FOR PERIOD FROM JANUARY 11, 1927, TO JANUARY 11, 1928.

RECEIPTS.

	£	s.	d.
January 11, 1927.			
To National Bank of Australasia Limited ..	109	19	9
January 11, 1928.			
„ Subscriptions	2,227	8	3
„ Transfer from Victorian Branch of the British Medical Association	415	0	0
„ Transfer from Medical Agency	400	0	0
„ Balance	1	2	10
	£3,153	10	10

PAYMENTS.

			£	s.	d.
January 11, 1928.					
By THE MEDICAL JOURNAL OF AUSTRALIA ..			1,273	10	0
„ Interest on Building Fund Debentures ..			483	17	6
„ Redemption of Building Fund Debentures			600	0	0
„ Salaries—					
Secretary	£412	0 0			
Bonuses to Staff	22	10 0			
Library Clerk	60	0 0			
Caretaker	100	0 0			
			594	10	0
„ Library, Journals and Binding			17	17	8
„ Furniture			8	6	0
„ Postages			78	4	10
„ Rates, Taxes and Insurance			40	18	3
„ Light and Power			18	13	9
„ Audit Fee, 1926			7	7	0
„ Bank Charges			1	10	0
„ Telephone			8	14	5
„ Repairs—					
Electrical	£4	0 6			
Plumbing	1	9 0			
Windows and Doors ..	3	1 5			
Furnishings	7	10 0			
			16	0	11
„ Sundries—					
Legal Fees	1	11 6			
Cleaning Windows	2	9 0			
			4	0	6
			£3,153	10	10

BALANCE SHEET AT JANUARY 11, 1928.

LIABILITIES.

	£	s.	d.
Overdraft at National Bank Limited	1	2	10
Debentures	6,325	0	0
Balance	4,202	0	7
	£10,528	3	5

ASSETS.

	£	s.	d.
Building	9,203	6	3
Furnishings and Fittings *et cetera*	1,324	17	2
	£10,528	3	5

Compared with the Books and Accounts of the Medical Society of Victoria and found to be in accordance therewith.

J. V. M. WOOD & CO., F.I.C.A.,
Incorporated Accountants and Auditors.

Melbourne, January 27, 1928.

C. STANTON CROUCH,
Secretary.

CRAWFORD H. MOLLISON,
Honorary Treasurer.

NOMINATIONS AND ELECTIONS.

THE undermentioned have been nominated for election as members of the New South Wales Branch of the British Medical Association:

Smith, Alan Frederick, M.B., 1926 (Univ. Sydney), 38, McLaren Street, North Sydney.

James, Stanley George, M.B., Ch.M., 1926 (Univ. Sydney), 47, Barry Street, Neutral Bay.

Granger, John, M.B., Ch.B., 1909 (Univ. Glasgow), Tottenham, New South Wales.

Burne, Alfred Rainald Keith, M.B., Ch.M., 1926 (Univ. Sydney), 10, Parkes Street, Kirribilli.

Murray, Ronald Elliott, M.B., 1927 (Univ. Sydney), 51, Marian Street, Auburn.

Bryant, Vincent Julian, M.B., Ch.M., 1925 (Univ. Sydney), 20, Bellambi Street, Northbridge.

THE undermentioned have been elected members of the Victorian Branch of the British Medical Association:

Jones, Paul, M.B., B.S., 1927 (Univ. Melbourne), Melbourne Hospital.

Bothroyd, John Strahan, M.B., B.S., 1927 (Univ. Melbourne), Melbourne Hospital.

Price, Eric Evan, M.B., B.S., 1927 (Univ. Melbourne), Melbourne Hospital.

Robertson, Edward Graham, M.B., B.S., 1927 (Univ. Melbourne), Melbourne Hospital.

Worcester, Reginald George, M.B., B.S., 1927 (Univ. Melbourne), Melbourne Hospital.

Melville, Charles Bernays, M.B., B.S., 1927 (Univ. Melbourne), Melbourne Hospital.

THE undermentioned have been elected members of the New South Wales Branch of the British Medical Association:

Anderson, Leighton Rowland, M.B., 1926 (Univ. Sydney), District Hospital, Orange.

Bryant, Vincent Julian, M.B., Ch.M., 1925 (Univ. Sydney), 20, Bellambi Street, Northbridge.

Burne, Alfred Rainald Keith, M.B., Ch.M., 1926 (Univ. Sydney), 10, Parkes Street, Kirribilli.

Ducker, Alan Lyall, M.B., B.S., 1927 (Univ. Sydney), Royal North Shore Hospital, St. Leonards.

Granger, John, M.B., Ch.B., 1909 (Univ. Glasgow), Tottenham.
Halliday, George Clifton, M.B., Ch.M., 1925 (Univ. Sydney), Tamworth.
Holt, Walter Gerald, M.B., B.S., 1927 (Univ. Sydney), 3, Tusculum Street, Potts Point.
James, Stanley George, M.B., Ch.M., 1926 (Univ. Sydney), 47, Barry Street, Neutral Bay.
McQuiggin, Harold George, B.Sc., 1914, M.B., Ch.M., 1926 (Univ. Sydney), 229, Burwood Road, Burwood.
Murray, Ronald Elliott, M.B., 1927 (Univ. Sydney), 51, Marian Street, Auburn.
Phillips, John Richard, M.B., Ch.M., 1925 (Univ. Sydney), Glebe Street, Ryde.
Sandrey, John Gordon, M.B., Ch.M., 1926 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.
Smith, Alan Frederick, M.B., 1926 (Univ. Sydney), 38, McLaren Street, North Sydney.
Spedding, Ronald Louis, M.B., 1926 (Univ. Sydney), 9, Cowper Street, Randwick.
Stewart, Douglas Macdonald, M.B., Ch.M., 1924 (Univ. Sydney), East Maitland.
Van Epen, Theodore William, M.B., 1913 (Univ. Sydney), 201, Macquarie Street, Sydney.

Correspondence.

VISCERAL PAIN.

SIR: Several of the assumptions on which Dr. Kinsella based his interesting discussion of visceral pain in the journal of January 21, 1928, appear open to criticism.

Is it quite certain that peristaltic pain is due to compression of nerve elements by the contraction of muscle? Is peristaltic action always intermittent and never continuous? And is absence of visible peristalsis in his colostomy experiments definite proof that no peristalsis occurred as a result of his experiments?

That congestion by itself is responsible for pain seems doubtful when one recollects that neither œdemas nor urticarias cause pain; it is much more likely that a toxin is the efficient stimulus to pain even in those cases where undoubted congestion is also present. I have seen excessively severe spasmodic pain felt in a finger with absolutely no physical sign other than a scar dating back fifteen days—this case proved to be an early tetanus which responded to antitetanic serum—the pain was apparently due to the presence of the toxin. It is probably the varying amounts of toxin produced in both leg and peptic ulcers which account for much of the variation in the intensity and frequency of the pain caused by them; a healing ulcer is much less painful than a spreading ulcer.

Visceral pain is at least a triple problem—where is the pain felt, what is its actual cause, what is its exciting cause?

Dr. Kinsella can hardly be held to have successfully confuted Mackenzie's thesis that visceral pain is referred to the body surface and not felt in the organ; for in the cases where he obtained the pain by injecting the bowel wall the pain was felt in the hypogastrium! And how can he prove, as he claims, that the definite tenderness in the "ulcer niche," in the diseased appendix and in the diseased gall bladder is felt in these organs? As Mackenzie pointed out, there are sensitive tissues between these and the examining finger; no one disputes that the exciting cause of these pains is in these organs.

Dr. Kinsella also takes unproved assumptions as to the cause of menstrual pain and argues from these as to the cause of peptic ulcer pain. Just as labour pain is certainly associated with contraction of muscle, so probably is menstrual pain. Labour pain offers a certain proof that visceral pain of the greatest severity may arise without either "congestion" or inflammation of any kind in the originating organ; neither can our eyes or our fingers indicate to us the likely degree of the pain caused by the contraction of the muscle.

Is it not possible, even probable, that inefficient or malefficient muscular contraction is in itself painful, causing the referred pain described by Mackenzie? Take *angina pectoris*—a terrible pain associated with an enfeebled contraction of the heart—it is difficult to believe that this weak cardiac contraction compresses nerves which were unaffected by efficient cardiac contractions.

That the pain of peristalsis may be continuous is shown by the constant character of the pain in gall stone and kidney colic in the severer attacks, as also by the continuity of the pain in certain labours. Plain muscle is liable to a tetanus. Constancy of the pain does not exclude the possibility of a plain muscular origin, it merely argues a persistently acting stimulus. It is where peristaltic or other muscular action is comparatively ineffective that pain arises—in the colics, in cardiac disease, in dysmenorrhœa, in average labour, in cramps, and probably in peptic ulcer itself. Dr. Kinsella's ingenious demonstration that soda relaxes the pylorus and duodenum argues an easing of the peristalsis in general. The emptying of the stomach either by vomiting or by the conclusion of digestion would cause the cessation of active peristalsis and with it the pain, just as the increasing peristaltic activity of the stomach during digestion would explain the development of pain some time after taking food. In early stages of ulcer the peristaltic inefficiency may occur only at the height of digestion, but as local conditions become worse, the peristaltic efficiency becomes less and less, so that pain occurs earlier and may become continuous. Where the ulcer has perforated or involved all the walls of the stomach probably the muscle is stimulated persistently to an abnormal action, an abnormality of action readily and directly communicable to neighbouring healthier parts of the organ.

The innate contractile efficiency of a muscle depends on its blood supply, which must be sufficient in quantity and quality and untainted by toxins *et cetera*. The patient with coronary disease gets cardiac weakness and *angina pectoris;* the patient with arterio-sclerosis may get intermittent claudication or cramp, due to insufficient quantity of blood.

One of my patients suffered from an undefined abdominal pain of great severity and demanded an operation for it; we could not discover anything for which to operate, but found a great shortage of protein in her diet, on correcting which she lost the pain. I have also had several patients with serious heart symptoms, including pain, which cleared up on adding protein to a faulty diet, so that I feel confident that pains of muscular origin are not infrequently due to a deficit of protein in the diet and consequently in the blood supply. Other deficiencies may conceivably lead to similar results (compare Ringer's fluid in the laboratory).

It seems simpler to relate peptic ulcer pain to defective peristalsis of the stomach during digestion and this directly to the mechanical and varying toxic influence of the ulcer on the adjacent muscle than to rely on congestive factors. Such a theory explains all the characteristic features of peptic ulcer pain (and other stomach pains), while equally well relating it to other visceral pains. Pain is an early and delicate indication of a fault in the contracting muscle.

Probably nothing would shed more light on the causation of visceral pain that a detailed investigation into the causation of labour pain, an inquiry easily made if it be assumed that the normal uterine contraction is efficient and painless, as uterine activities could then be studied both objectively and subjectively.

No doubt the view we take of the origin of the causation and site of visceral pain or at least of pain originating in the hollow muscular viscera, will depend largely on whether we favour a myogenic or a neurogenic control of their automatic activities. I am myself a myogenist.

Yours, etc.,

MARY C. DE GARIS.

Geelong, Victoria.
February 1, 1928.

"ATOPHAN."

SIR: I was called in consultation to see a case which had been under treatment for four weeks for rheumatism and had suddenly developed an intense jaundice and was informed that she would have to be operated on for gall stones immediately.

Her history was as follows: Four weeks ago she developed great pain in both knees and swelling in both feet and pain and flatulence on taking any solid food. On advice she had ten (10) teeth extracted, had three weeks' massage and special foot exercises, was given a bismuth mixture and put on "Atophan." This was continued with no improvement for four weeks when she developed intense jaundice and her doctor told her that gall stones were the cause of the whole condition and advised immediate operation. She was opposed to this and asked for another opinion.

On examination there was a very deep jaundice all over the body, her hair, which had been fair, was now quite dark; there was no itching present.

The liver margin was not palpable and there was no tenderness over the gall bladder. Her urine was loaded with urates, her tongue was clean and there was no disturbance of temperature or pulse.

"Atophan" when exhibited to those whose hepatic function is lowered may precipitate an attack of uric acid "gravel" and cause a toxic jaundice and as she was a sufferer for years from atonic dyspepsia which would lower the hepatic function, I diagnosed "Atophan poisoning."

With hot compresses to the hepatic area and a mixture of potassium bicarbonate the patient rapidly improved.

In prescribing "Atophan" in debilitated subjects, glucose should be given in addition to an alkali, as it increases the glycogen store in the liver and so protects it.

Yours, etc.,

A. M. WATKINS.

Bancroft Avenue,
Roseville, New South Wales.
Undated.

WORKERS' COMPENSATION ACT.

SIR: "G.P.'s" letter in the journal of February 11 is timely. Members of the Association should resist all inroads on legitimate fields of private practice.

Recently the parent Association appointed a special committee to make a report on the subject of such interference with the work that should be done by private practitioners.

I would suggest to "G.P" that he should officially bring this matter before his local Medical Association which body might take the necessary steps to have the whole matter inquired into by the Federal Committee.

Yours, etc.,

E. S. MEYERS.

Brisbane.
February 15, 1928.

Obituary.

LAUNCELOT HARRISON.

THE members of the medical profession throughout Australia and particularly the more recent graduates in medicine of the University of Sydney will join with the general body of scientific workers in expressions of profound regret at the sudden death of Professor Launcelot Harrison. While on a fishing expedition at Narooma, New South Wales, he had a cerebral hæmorrhage from which he did not recover.

Born in Wellington, New South Wales, forty-seven years ago, Launcelot Harrison was the son of the late Dr. Thomas Harrison, of Sydney. He began a brilliant scholastic career at The King's School, Parramatta. He became head of his school and won the Broughton Scholarship. At the University of Sydney he graduated in science in 1913 with high distinction, first class honours and the University Medal in Zoology. He also won Professor Haswell's prize in zoology. He gained honours in botany and won the Dun prize for palæontology. He then became junior demonstrator in zoology and in 1914 was awarded the John Coutts Scholarship and later on one of the Exhibition of 1851 Science Research Scholarships which enabled him to go to Cambridge for further study.

Then came the war. Harrison's knowledge and scientific achievements singled him out for the position of Advisory Entomologist to the Expeditionary Force to Mesopotamia. His work here was of untold value in the prevention of disease, but he was not to be spared. He fell a victim to both malaria and typhus fever. These two infections left their marks upon him and were really instrumental in causing his early death. On his return from the war he rejoined his *alma mater* and in 1922 became Professor of Zoology. As a teacher he was successful and popular. It has been said of him that he had a natural faculty of speech and a wonderfully lucid way of chatting rather than of lecturing on his subjects. His lucid address on the biology of the cell in a symposium on malignant disease before the New South Wales Branch of the British Medical Association will be remembered by those who were privileged to hear it.

Of the part played by Harrison in scientific societies much might be written. He was a Trustee of the Australian Museum and at the time of his death was Chairman of the Scientific and Publication Committee. He was a Past President of the Linnean Society of New South Wales and was a Councillor and had occupied the presidential chair of the Royal Zoological Society of New South Wales. He was versatile and of a happy disposition. Like J. M. Barrie he had a "McConnachie" and under the pen name of "Alter Ego" published some charming verses for children. The sincere sympathy of the medical profession is offered to his widow who is well known through her writings as Amy Eleanor Mack.

JOHN TIMOTHY KENNEDY.

WE regret to announce the death of Dr. John Timothy Kennedy which occurred at Cobram, Victoria, on February 19, 1928.

PERCY GERALD PALMER.

WE announce with regret the death of Dr. Percy Gerald Palmer which occurred at Windsor, Victoria, on February 21, 1928.

Proceedings of the Australian Medical Boards.

VICTORIA.

THE undermentioned have been registered under the provisions of Part I of *The Medical Act*, 1915, of Victoria, as duly qualified medical practitioners:

Beveridge, Charles Eric Glasson, M.R.C.S. (England), L.R.C.P. (London), 1925, c.o. Archdeacon Hancock, Middle Brighton.

Buttner, Friedrich Adalbert, L.R.C.P. *et* S. (Edinburgh), L.R.F.P.S. (Glasgow), 1927, Chadwick Mansions, Alexandra Avenue, South Yarra.

Chenoweth, Thomas Oswald, M.B., B.S., 1910 (Univ. Melbourne), F.R.C.S. (Edinburgh), 1927, Bank of New South Wales, Collins Street, Melbourne.

Reed, Margaret Geraldine Phoebe, M.R.C.S. (England), L.R.C.P. (London), 1926, M.B., B.Ch. (Cambridge), 1927, Mt. Pleasant, Launceston Tasmania.

Sharpe, George Metcalfe, L.A.H. (Dublin), 1900, c.o. Miss Kent, 103, Armstrong Street, Ballarat.

Additional diploma registered:

George Henry Wickens, M.R.C.P. (London), 1926.

TASMANIA.

THE undermentioned have been qualified under the provisions of *The Medical Act*, 1918, of Tasmania, as duly qualified medical practitioners:

Colquhoun, Arthur Gideon Hugh, M.B., 1888 (Melbourne), Bellerive.

Harris, George Thomas Hamlyn, M.B., Ch.M., 1926 (Univ. Sydney), Smithton.

Bonwick, James Montague, M.B., B.S., 1926 (Univ. Melbourne), Launceston.

Books Received.

THE EXAMINATION OF THE CENTRAL NERVOUS SYSTEM, by Donald Core, M.D. (Manc.), F.R.C.P. (London); 1928. Edinburgh: E. and S. Livingstone. Crown 8vo., pp. 260. Price: 8s. 6d. net.

PRACTICAL BACTERIOLOGY, BLOOD WORK AND ANIMAL PARASITOLOGY, by E. R. Stitt, A.B., Ph.G., M.D., Sc.D., LL.D.; Eighth Edition, Revised and Enlarged; 1927. Philadelphia: P. Blakiston's Son and Company; Sydney: Angus and Robertson, Limited. Post 8vo., pp. 837, with illustrations. Price: 25s. net.

Diary for the Month.

MAR. 6.—Tasmanian Branch, B.M.A.: Council.
MAR. 6.—New South Wales Branch, B.M.A.: Ethics Committee.
MAR. 7.—Victorian Branch, B.M.A.: Branch.
MAR. 7.—Western Australian Branch, B.M.A.: Council.
MAR. 8.—Victorian Branch, B.M.A.: Council.
MAR. 9.—Queensland Branch, B.M.A.: Council.
MAR. 13.—Tasmanian Branch, B.M.A.: Branch.
MAR. 13.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
MAR. 19.—New South Wales Branch, B.M.A.: Organization and Science Committee.
MAR. 20.—Tasmanian Branch, B.M.A.: Council.
MAR. 20.—New South Wales Branch, B.M.A.: Medical Politics Committee.

Medical Appointments.

Dr. Thomas Craig Boyd (B.M.A.) has been appointed Honorary Adviser regarding the use of radium at Perth Hospital, Perth, Western Australia.

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Dr. Gilbert Elliott Aitken (B.M.A.) has been appointed Medical Superintendent to the Mental Diseases Hospital, New Norfolk, Tasmania.

Medical Appointments Vacant, etc.

FOR announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xviii..

ALFRED HOSPITAL, MELBOURNE: Medical Vacancies.
AUSTIN HOSPITAL FOR CHRONIC DISEASES, HEIDELBERG, VICTORIA: Junior Resident Medical Officer.
SYDNEY HOSPITAL: Honorary Surgeon, Honorary Relieving Assistant Surgeon, Honorary Radiologist, Honorary Assistant Radiologist (2).
THE WOMEN'S HOSPITAL, SYDNEY: Resident Medical Officer.
THE ADELAIDE CHILDREN'S HOSPITAL, INCORPORATED: Honorary Surgeon to Outpatients.
WESTERN AUSTRALIAN STATE PUBLIC SERVICE: Assistant Medical Officer.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney.	Australian Natives' Association. Ashfield and District Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester United Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phœnix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Members accepting appointments as medical officers of country hospitals in Queensland are advised to submit a copy of their agreement to the Council before signing. Brisbane United Friendly Society Institute. Stannary Hills Hospital.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	All Contract Practice Appointments in South Australia. Booleroo Centre Medical Club.
WESTERN AUSTRALIAN: Honorary Secretary, 65, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Medical practitioners are requested not to apply for appointments to positions at the Hobart General Hospital, Tasmania, without first having communicated with the Editor of THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, Sydney. (Telephones: MW 2651-2.)

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